COAL AGE

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The Management of Men

Confidence is the conqueror of men; it is victorious both over them and in them. Distrust is the worst of all poisons, as it fills a man's heart with the bitterness of suspicion

THE REASON lots of mine managers fail to get along is because they don't sell their new ideas to their workmen. One of the most successful mine operators in America never makes a change in general policy until he has explained the working advantages of his new scheme to his immediate subordinates and many of his other employees. No matter whether or not the plan you propose to inaugurate is of direct benefit to the miner, he will be suspicious at first, and it is best to dispel quickly all such misgivings. One company recently established a bonus system. The plan was a success principally because the company issued a booklet right away explaining the benefits of the new scheme.

Even the efficiency engineer is looked upon with suspicion by the workmen. Usually they consider him the enemy of labor. Why? Because the manager has not attempted to explain the benefits that accrue to the men when all effort is systematic and effective. It is common for miners to view efficiency, individually and collectively, as of benefit only to stockholders in the way of increased dividends.

EVERY MANAGER must be a salesman; that is, he must be able to sell his ideas to his workmen. Every idea he sells and delivers must be wrapped in that happy, durable covering known as satisfaction. The manager should always sell his plan first and introduce it afterward. Strong-arm methods are obsolete. An appeal to the better motives of even the lowest grade of workman will awaken him and cause him to show new interest in his labor.

The most effective way to handle men is to accept their viewpoint on the job and work with them. Guiding is easier than pulling. The manager of a successful mine was walking along an entry one day on a trip of inspection. A car in a near-by room was off the track, and a miner working there just lacked the power to get it back. The manager went quickly forward and lent a hand. The car was put on the rails, and the big boss soiled a fairly good suit of clothes, not being dressed at the time for such work. But the example he set for his men repaid his company and himself many times over.

DIPLOMACY AND TACT will move a load when bluster and bluff will only cause friction. Explaining is often better than ordering. It is better to know how to ask sensible questions than to solve problems in calculus or to translate Sanskrit. The manager who knows most of his men by their first names will arouse co-operation, while the fellow who is a stranger in his own house will, at the best, find only indifference.

No organization can succeed without team spirit. One way to bring this about is to have some one or more common interests for all. It may be a baseball team, a first-aid corps or a band. This is one way to smooth out the wrinkles in routine and bring the white-collar office men into congenial contact with the fellows in overalls. Any friction between the office force and the mining crew results in widespread inefficiency. The overthrow of envy and prejudice means that differences will vanish and general good feeling be promoted.

STUDY YOUR MEN. One needs a spur, another artificial initiative, while a third requires encouragement. Some men respond best under stern discipline; others must be cajoled and coaxed. Many men accomplish most when work is piled up to their eyes; others can handle only one task at a time.

The able manager gets out of each individual the maximum force and effectiveness that is in him.

Ideas and Suggestions

First Aid to Safety First

By Forney L. Parker*

Rules and regulations covering each and every phase of coal mining for the prevention of mine accidents should be in force at every colliery and the foreman should see that they are obeyed by the employees.

For instance, some of these rules should be like the following:

Door boys—Must not couple up cars, etc. All men who work around moving cars should wear their smock inside their overalls and have no loose ends of clothing which may be caught by passing cars.

Pushing cars in haulageway—A gong should be placed on the head end of trip to sound warning.

Cutting ditch—Where a ditch is cut in the gangway, the side nearest the road must be cut perpendicular and not on the slant, for animals or men passing by may slip and fall.

Blackboard at fireboss' station—Miners should put down any and all information concerning their working place, such as missed hole, heavy top, etc.

If an employee is not compelled to obey a definite set of rules, he soon loses sight of the main idea; and while he may be careful at first owing to the newness of his position, he will soon become familiar with his work and is then very apt to become careless.

A Single Fatality May Cost Company $4,000

That the men should be held strictly to the rules goes without saying, for a simple act of disobedience may cost them their lives. Again, it is to the company's advantage as well as its duty to see that the safety-first rules are obeyed, for under the new compensation act a single fatality may cost the company $4,000.

The first-aid men, the assistant foreman and the firebosses should have charge of the instruction in these rules and regulations, and any infringement of them should be reported at once to the foreman. When an accident does occur, the first-aid man in that district should get all the information possible from the injured employee, and the names of at least two eyewitnesses should be taken.

At points where dangerous machinery, high-voltage electric wires, etc., are located, printed warnings should be placed, and translations should be made in the various languages spoken by the foreign element employed at the mine.

When an employee is hired, he should be acquainted with the dangers he is likely to encounter in his new job, and it should be ascertained whether he knows the right thing to do under these conditions. For instance, if a miner and his buddy contract to drive up a breast for the company, he should be acquainted with the nature of the top rock, how it breaks, whether the coal in the seam is free or dead, whether the bottom heaves and breaks the props, etc.; for first impressions are more easily remembered than later ones.

While these injunctions would naturally be given by the fireboss after his daily examination trip through the working places before the miners arrive for their shift, it is well to acquaint the miner with all the possible conditions which he may expect to encounter and thus prepare him in advance.

Where the foreign element is largely employed these rules cannot be impressed too strongly, for the ignorant miner is not only a menace to himself, but also to others.

Just as we need ethical rules and practical rules for the miner in order that he may become efficient in his work, so do we need safety-first rules in order that the hazards of mining may be reduced.

Teach your men to think for themselves, for it is usually the thoughtful man who comes through with a whole skin.

*Joliett, Penn.

Improving Quality of Pillar Coal

By Ernest L. Bailey*

For one familiar with the mining methods of the Eastern states and cognizant of the value of the coal there, it is particularly difficult to realize that in certain Western states good business men consider it sound policy to plan their mine development with the idea of making no effort to recover their pillar coal; and it is again surprising that in the Eastern states, where in many instances a satisfactory percentage of recovery is obtained from pillars, more attention has not been given looking toward the recovery of the product in a somewhat better condition.

Careful observation of actual conditions extending over a period of some years and an opportunity to note the results obtained from the application of different methods have convinced me that it is possible, not indeed to recover the pillar coal in the same condition as that obtained from open work, but more nearly so than is usual.

In planning the development of a new mine, if conditions allow the adoption of a method which will permit of the pillars being robbed advancing, the possibility of maintaining a standard of quality for the product of that mine is definitely in view, although the work of keeping the quality to that standard will require the conscientious enforcement of certain rules and regulations.

The accompanying map shows a system of advance robbing particularly adapted to a weak or fragile roof. Both cross-entries and rooms are turned on 50-ft. centers, the rooms being driven 24 ft. and the entries 12 ft. wide, the rooms having a depth of 400 ft. The panel consists of five cross-entries of 40 rooms each, thus limiting the maximum length of the line of fracture to approximately 3,000 ft., which is the maximum length desirable. Although with the exercise of due care in maintaining its alignment a longer breakline should give no trouble, it can in most instances be avoided, thus minimizing to a degree the possibility of an uncontrollable pressure.

*Crumpler, W. Va.

The fracture line is carried on such an angle as to maintain a distance of from 50 ft. to 75 ft. between the pillar face of any room and the room following it, or in other words a 50-ft. or 75-ft. "step." This distance will vary with different qualities of roof and overhead pressure and must be determined experimentally. It should be such as to so balance the overhead pressure that the use of explosives will be rendered necessary in mining pillars and will in most cases, I believe, be found to be between 50 ft. and 75 ft. for rooms turned on 50-ft. or 60-ft. centers.

Only Two Rooms Are Completed in Advance of the Fracture Line

In the preliminary development only two occasional rooms are developed, the remaining rooms being developed at the time of robbing, not more than two rooms being completed in advance of the fracture line, and the line of the faces of the advancing rooms making an angle of not less than 33 deg. nor more than 45 deg.

If deemed desirable for haulage purposes, the remaining rooms on the first cross may be left intact and developed and robbed with the barrier pillar. This is frequently advisable, as it helps to maintain an output sufficient to justify the keeping up of equipment in the declining years of the mine.

As previously stated this system is well adapted to a seam overlaid with a weak top. If the roof, however, possesses sufficient strength to permit of it, quite a reduction may be effected in the cost figure by a modification of the foregoing plan which changes the rooms to 36 ft. in width turned on 90-ft. centers. A track arrangement may be made by a turnout in the face from the main track which allows two cars to be loaded at the same time and which is advanced with the main track, or the room may be double-tracked. If the cost of timber does not forbid the placing of a row of timbers in the center of the room, this method will be found to work satisfactorily in many cases where the top is inclined to be weak.

Where the coal is mined with machines it might not be amiss to remark that considerable advantage may accrue from the equipment of the coal-cutting machines with 10-ft. cutter heads, the cuts being shot in two sections of 5 ft. each. This ordinarily obviates the necessity of a place being cut oftener than on alternate working days and makes it possible for one machine to take care of a greater number of places.

The economical advantages to be derived from a system of mining which incorporates advance robbing may be briefly summarized as follows: It permits the drawing of the pillar on the same track and with the same timber as is used in the development of the room. It concentrates the working places to the highest possible extent, thus affecting a reduction in the outlay per ton for trolley wire, rails, haulage, ventilation and bossing. It renders practicable a closer supervision of the working places and a consequent better alignment of the line of fracture than would be possible with the workings extended over a greater area. It makes possible the safe extraction of a higher percentage of the total product than is usually recovered with other systems.

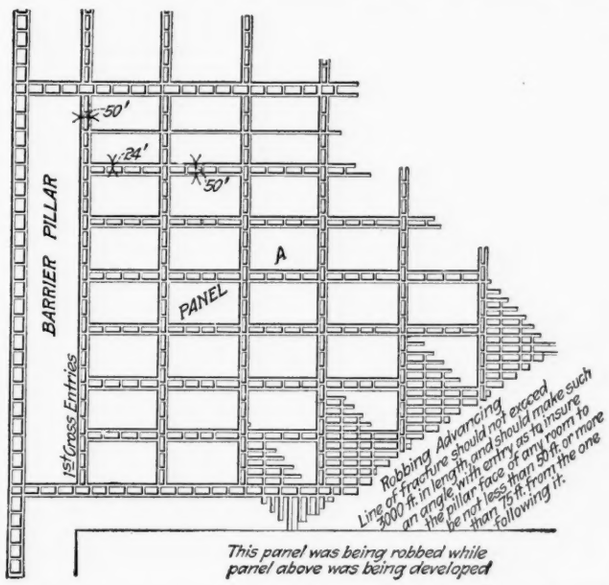
In the foregoing I have endeavored to show the possibility of a reduction in the cost figure from the adoption of a plan of mining which permits of robbing advancing; I now hope to show what I believe to be of even more importance, the possible improvement that may be made in the product of the pillars by a proper distribution of the overhead pressure.

A Proper Distribution of Overhead Pressure

It is my opinion that many mine foremen have an incorrect idea in regard to the recovery of pillars. They, having for the most part worked their way up from the ranks, have what might be termed the "coal miners' point of view." They like to see "soft" coal; they dislike the idea of having to blast it. Their conception of an ideal pillar condition is one where the coal may be shoveled from the solid, with the occasional aid of a pick only.

While there might be an objection raised on the side of safety, I will concede that from a financial viewpoint this condition is best for the coal miner, but it is decidedly not best for the product and is proportionately hurtful to the producer.

With nearly any well-ordered system of mining it is possible to locate and maintain a line of fracture which


50'
24'
50'
BARRIER PILLAR
A
PANEL
1st Cross Entries
Robbing Advancing
Line of fracture should not exceed 3000 ft. in length, and should make such an angle with entry as to insure the pillar face of any room to be not less than 50 ft. or more than 75 ft. from the one following it.
This panel was being robbed while panel above was being developed

A PLAN FOR ADVANCE ROBBING UNDER WEAK ROOF

produces a minimum pressure on the retreating face of the pillar and leaves the product thereof accordingly low in slack.

This line is more easily maintained with an advance system of robbing than with any other, for the reason that the pillar being recovered immediately after the development of the room, effective settlement has not had time to take place, the pillars have not air-slacked and the quality of the coal has not been affected by long exposure.

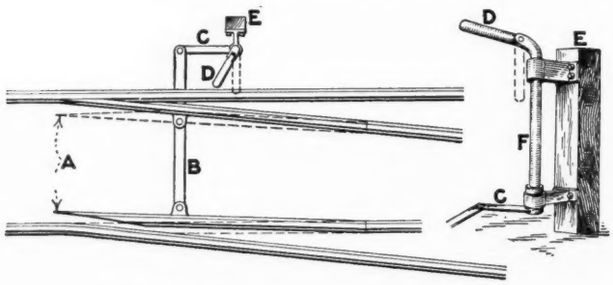
The same result may be obtained, though at considerably more expense, by driving the entries to their limit before room development is commenced and robbing retreating, the line of robbing following immediately upon the advancing rooms.

But with any plan of mining close supervision and correct alignment are necessary to obtain a good product of pillar coal, and it should be remembered that "soft" coal, no matter how attractive to the miner, means increased slack and consequently a greater loss of money.

A Semiautomatic Switch

A new type of mine switch which is semiautomatic in operation has been recently devised by S. R. Madell, of Homer City, Penn. As may be seen in the accompanying illustration, the switch points *A*, which are joined by the bridle bar *B*, are operated by the lever *D*, actuated through the vertical standard *F* from the lever *C*. The standard *F* is secured by brackets to the post *E*, which is placed against the rib, the length of the bridle bar *B* being made sufficient to accommodate this arrangement.

As will be readily perceived it is only necessary to throw this switch by hand when the trip is approaching the point of the switch. When traveling in the other direction, or toward the left in the illustration, the locomotive will automatically throw the points in either direction, so that it is unnecessary for the triprider to throw the switch by hand. The hand lever *D*, which is usually made of about 1-in. round iron is hinged, so that when not in use it folds down alongside of the standard *F*. This hand lever is usually made about 12 in. long.



LAYOUT OF SEMIAUTOMATIC SWITCH

There are many places in the mine where such a switch as this is extremely convenient, and its simplicity is such that it may be readily made by any mine blacksmith.

How To Hold Miners

By F. de F. Browning

The time has passed when miners will stand for hours at the mine entrance waiting until the mine foreman comes out so that they may ask, "Mister boss, you gim'me job?" Good miners are not as plentiful as they once were, and in the next few years they will grow more scarce.

The regularity of the output of our mines from now on will be to a great extent determined by the capacity of our mine officials to hold men. There are many ideas and suggestions of just how this can be accomplished, and one of them I am now going to submit for the reader's consideration.

First, in order that the best there is in a man may be obtained, he must have an interest not only in his work, but in his surroundings. Therefore for a mining company to hold men and keep them satisfied it must create an interest in the mine, the store, the town and the people in that town. To the greater part of our coal operators this will seem an impossibility.

Let us suppose we are to lay out a new mine. In arranging our plant let us give much care and thought to the miners' townsite and laying the ground out into streets, alleys and lots; then let us place on these lots good, convenient and comfortable miners' homes. Some buildings are just houses, but with a little thought they can be made into homes. By making 35 per cent. or 40 per cent. of these buildings single houses, and then taking care to get as much difference in the appearance and plans for the houses as possible, a pleasing effect will be accomplished. The general scheme may be very much the same, and yet by the arrangement of windows, doors, porches and roofs a wonderful effect can be had. The painting should be done carefully in order to see that no two houses in a block are alike.

Should Sell Homes to Miners

After laying out the town, building the houses, putting up fences and laying sidewalks, care should be exercised in selecting the tenants while the plant is new. This can be accomplished at a time when few men are required to run the mine. After the tenant has been proved and found to be a desirable one, make him an offer to sell him a house on easy terms, same as rent. The first few will be suspicious, but after two or three miners have purchased homes, other men will come to the plant and be glad to take up the idea.

The store, school, doctor's office, playground, etc., should be near the center of the town. Scattered throughout the village should be a few vacant lots, upon which may be constructed churches and other public buildings. If possible a charter should be procured making the town into a borough; then by popular vote make the miners councilmen, school directors, mayor, firemen, etc.

Let us now look at this plan from a dollars-and-cents standpoint.

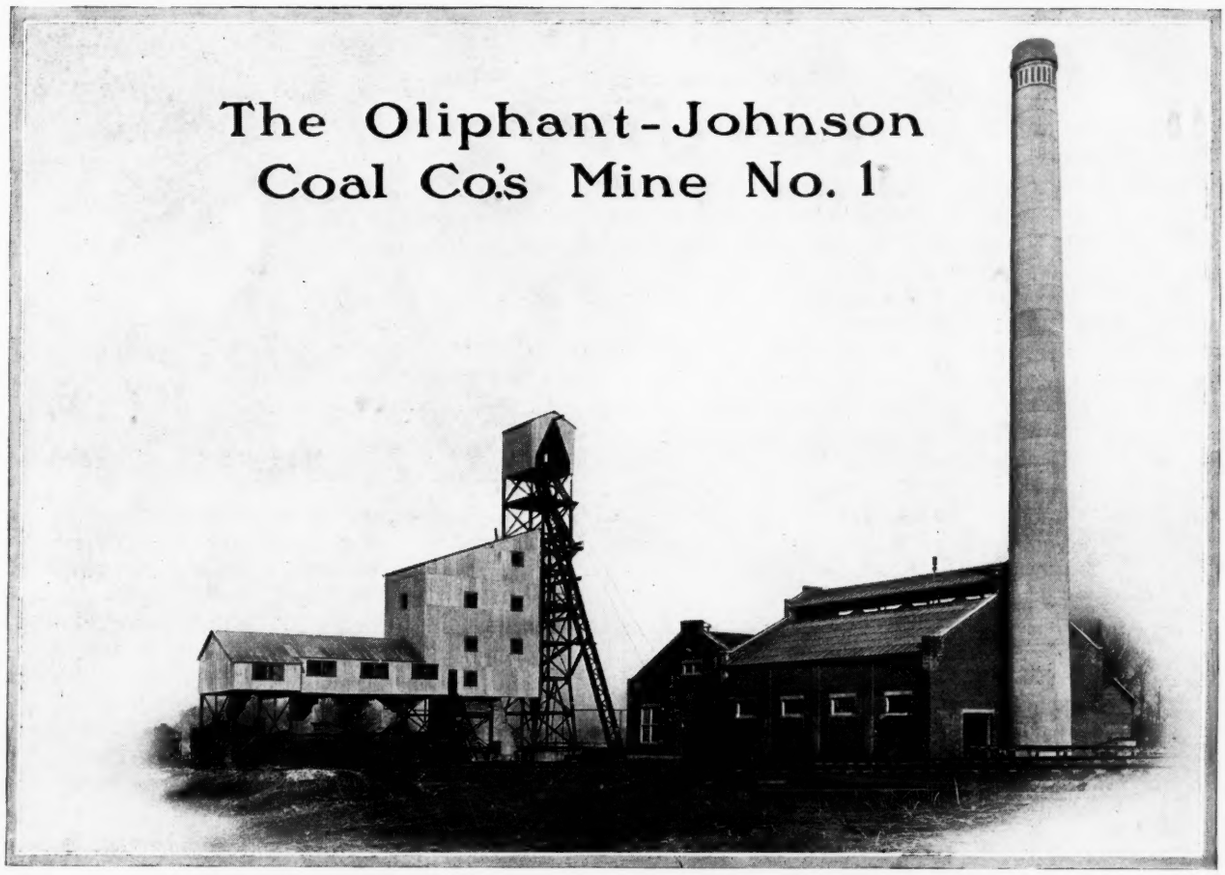
Suppose we assume that the property on which the town is built is worth $100 per acre. If we lay out five lots to an acre, which plan will give wide streets, alleys and good-sized lots (lots large enough for gardens), each lot will be worth $20. To this add an equal sum for the engineering expense of laying out the plot and making the house plans. The lots then stand at $40 each. Upon each of these lots a $1,000 or $1,100 house is built; to this add the cost of fences, walks, etc., so that the house complete can be offered the miner for $1,200, he to pay for it by weekly or monthly payments, with interest on deferred payments. The failure to make prompt payments can be taken care of as the land companies handle similar property transactions.

When a number of miners have purchased homes, they can be counted on to lend their best efforts toward making the camp and the mine a success, for in so doing they are making their own property more valuable. A condition of this kind helps considerably in the adjustment of labor troubles and thereby renders the problem of management less difficult to solve.

The Per Capita Consumption of Coal in the United States is greater than in any other country, and this proves that the nation is burning coal for other nations. It is the gratifying test of industrial capacity and proves further that the industrial output per man in the United States is greater than in any other country.

The Easily Accessible Anthracite and Bituminous Coal in the United States now exceeds in quantity the estimated tonnage given by M. R. Campbell in 1909 by 440,000,000,000 tons, an increase of nearly 30 per cent. This change in Mr. Campbell's estimates is due principally to the work done in the intervening two years by government geologists in classifying and valuing public coal lands.

The Oliphant-Johnson Coal Co.'s Mine No. 1



SYNOPSIS—The southern Indiana field is being rapidly developed. The coal averages better than 7 ft. in thickness and is mined on the panel system, 40 rooms to a panel. An elaborate preparation plant has been installed. Permissible explosives are employed.

In the Indiana coal field there is a noticeable trend of the mining industry toward the south. Much of the accessible coal of merchantable quality in the northern part has been depleted, and progressive coal operators are seeking virgin and more productive fields, heretofore neglected, further south. An evidence of this movement is indicated in the recent advance of Knox County to its position as one of the greatest coal-producing counties in the state. That a still greater future may be expected for this county is reasonably certain and is predicted by coal operators in the state, who base their assertion on the fact that Knox County, embracing 540 sq.mi., is entirely underlaid with coal of high quality, accompanied by excellent mining conditions. Furthermore, the field is so located as to be easily accessible to large markets such as Chicago, Indianapolis and the Indiana gas belt on a minimum freight rate, giving it a great advantage in this respect over many competitive fields in Illinois, Ohio, Kentucky, Pennsylvania and West Virginia.

At present all the Knox County mines are operating in vein No. 5, which by reason of its thickness, purity and favorable mining conditions takes precedence over vein No. 6, which bed occurs at a lesser depth.

As an illustration of the progress being made in this field, the two largest and best-equipped mining plants in the state, each built for 5,000 tons daily capacity, were completed during the year 1915; and this year a company is preparing to sink another shaft and open a mine of large capacity. Two new modern steel tipples will be built by other companies now operating in the field. At present there are seven mines operating in Knox County, with a combined average daily tonnage of 15,000 tons, and this will be greatly increased after the new mines have had time to develop their capacity output.

One of the new mines completed last year, and of which the following is a description, was constructed by the Oliphant-Johnson Coal Co., of Vincennes, Ind. This company is headed by John T. Oliphant, president, who is also president of the Vincennes Bridge Co. William Johnson, formerly general superintendent of the Big Creek Colliery Co.'s operations in Illinois, is first vice-president and general manager.

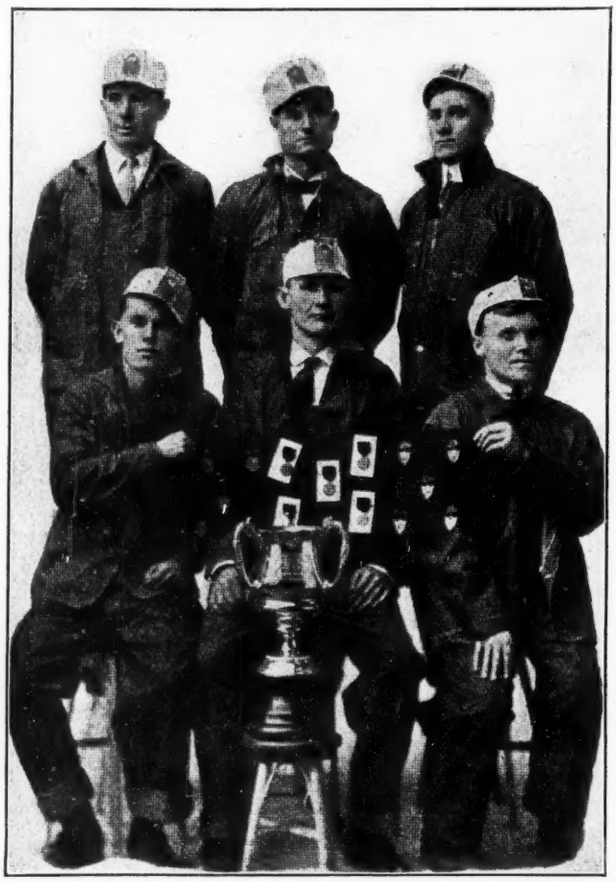
The Coal Seam

Before sinking operations were commenced the vein was thoroughly prospected and found to be of uniform thickness and quality over the entire 3,000 acres the company acquired. The bed averages about 7 ft. 6 in. in thickness. Drillings indicate a coal of superior heating value, while grades determined from the elevation of the seam at drill holes were apparently uniform and conformed to the general dip of this field, which is about 25 ft. to the mile in a westerly direction. Owing to this dip the coal here lies at a depth of 407 ft., which is nearly 200 ft. greater than the mines at Bicknell, 8 miles east in the same county.

The main shaft, which is 11x19 ft. in size, is cased with concrete to solid rock at a depth of 42 ft., and from this

point to the coal with 4x8-in. plank casing. The buntins are 6x8 in. Guides are 6 in. deep with 8 in. face, being built up of 2x8-in. plank and pinned to the buntins with 1-in. round oak pins. The two hoisting compartments are each 11 ft. by 6 ft. 6 in. between guides. There is also a pipe compartment 2x11 ft.

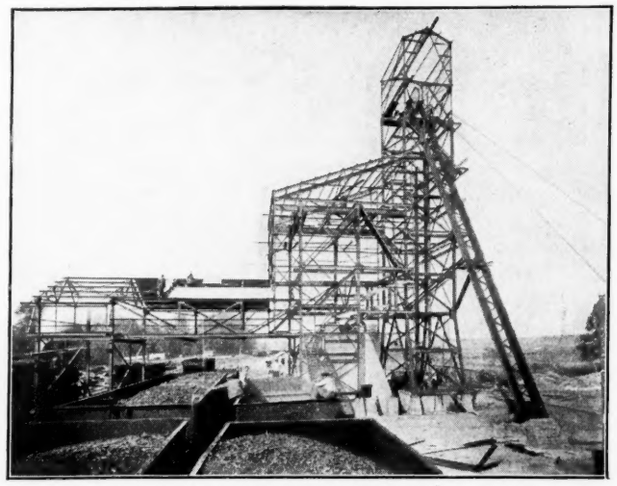
The airshaft is 11x15 ft. in size and is divided into airways and escapeways. All timbers used in construction of the shafts are No. 1, 90 per cent. heart yellow pine. The manway compartment of the airshaft will ultimately be equipped with a steel stairway, but for the present the cages and hoisting engines used during preliminary development will be left in place to be used in prospecting seam No. 6, which lies about 100 ft. above the No. 5 bed. To assist in this operation the temporary tipple, screens and railroad tracks have been left in place. Later



FIRST-AID TEAM OF OLIPHANT-JOHNSON COAL CO., CHAMPIONS OF INDIANA

these will be removed, and the present ventilating fan, which is a 16x5-ft. centrifugal, will be replaced by a modern fan of increased capacity.

The four-track steel tipple, which was designed by the Roberts & Schaefer Co., of Chicago, and built by the Vincennes Bridge Co., of Vincennes, Ind., incorporates the most recent improvement in tipple design. The headframe is a modified form of the four-post, end-hoist type, with a single batter brace in the plane of the hoisting ropes. The center of the higher sheave is 88 ft. 6 in. above the top of the rail, and the distance from the center of shaft to that of the hoisting drum is 80 ft. The sheaves and drums are 7 ft. in diameter, using a 1⅜-in. rope.



TIPPLE DURING ERECTION

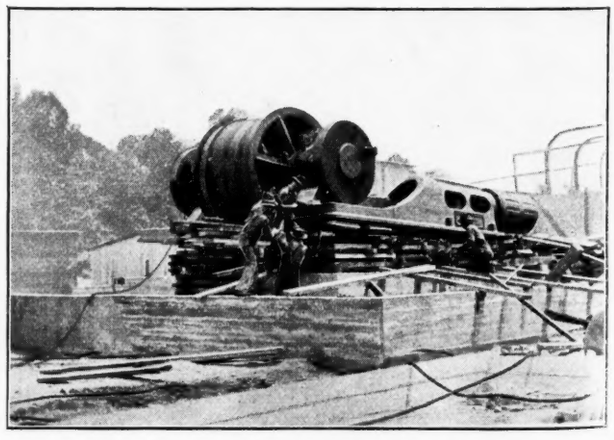
The cages are of composite wood and iron construction of the Bond type, wood being used in part to cushion shock. They were built by the Herzler & Henninger Machine Works, of Belleville, Ill., and weigh 5¾ tons each.

Owing to the Indiana agreement, which provides that the miner be paid on both the screened-coal and mine-run basis, the coal is first dumped over the standard 6x12-ft. screen, with 1¼-in. bar, of which there are two sets, one for each cage, and each serving a weigh pan of the lowering type which dumps into a receiving hopper common to both. These screens are provided with veils to pass the mine-run coal into the weigh pan when loading mine-run for shipment, as provided in the agreement.

Both weigh pans are suspended from the same steel scale frame. When needed, the screenings from either set of bar screens may be diverted by the operation of a flop-gate into a chute which conducts the screenings into a hopper, whence it is conveyed to the boiler room for local use as required.

Preparing the Coal for Market

Preparation is effected on two 6x50-ft. Marcus horizontal screens, each of which is served by a reciprocating plate feeder. Impurities are here picked out and deposited in refuse chutes, which lead to drag-chain refuse conveyors located beneath the screens. These conveyors



SETTING A HOISTING ENGINE

return the pickings to the boiler-coal hopper to receive further separation in the boiler room, where the combustible part of the refuse is utilized under the boilers furnishing the mine power. This feature eliminates much of the wastage consequent to rapid and thorough preparation and insures the loading of only the coal which is entirely free from impurities.

Each Marcus screen and feeder operates entirely independently of the other, thus permitting an elastic arrangement of sizing and loading. The sizes marketed are 1¼-in. screenings, 1¼x3-in. nut, 3x6-in. egg and 6-in. lump, or any combination of these sizes. The 6-in. lump coal is loaded into railroad cars over a carefully designed curved chute with extension to reduce breakage. The nut- and egg-loading chutes are provided with rescreening plates to extract breakage just before loading. This breakage empties into the refuse chutes.

Mine-run coal may be loaded on the screenings track directly from the receiving hopper or passed over the picking table and loaded on the lump track. The latter method is favored, since it permits of the elimination of impurities. The Marcus building is well provided with windows in order that the picking tables may be well lighted. A particular effort has been made by the management to provide those features which would insure careful and thorough preparation. Weigh pans, bar screens, chutes and hoppers were manufactured by the Jeffrey Manufacturing Co., of Columbus, Ohio.

Layout of the Power House

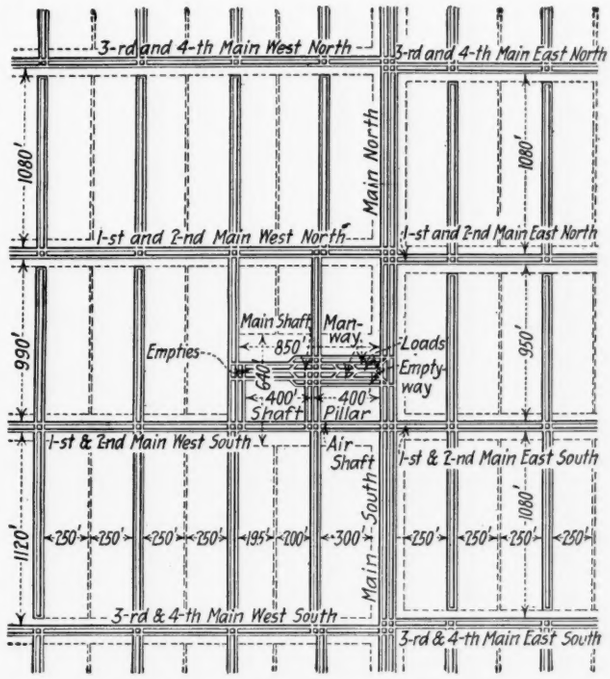
The power house is of concrete, brick and steel construction, with Federal cement tile roof. It is divided into two rooms—one for boilers, feed pumps, compressor and heater and the other for generating units and hoisting engines. The boiler room is 52x57 ft. in size. There are four 150-hp. Brownell horizontal tubular boilers, each 72 in. by 20 ft. with twenty-six 6-in. riveted flues. They are equipped with 5-ft. Ajax shaker grates and set in a brick battery setting. The firebox of each boiler is lined with Laclede King high-grade firebrick, laid in Johns-Manville high-temperature cement, and is fitted with a steel mixture firedoor arch. The combustion chamber is lined with a medium grade of firebrick laid in fireclay. A heavy reinforced concrete slab foundation supports the setting.

The boilers are spanned by a steel breeching leading to a tapered reinforced-concrete chimney, 130 ft. high and 7 ft. inside diameter at the top, built by the Weber Chimney Co., of Chicago. This chimney was built of adequate size to serve an additional battery of boilers to be located on the opposite side of the chimney, in a manner duplicating the present arrangement when additional power is required. Screenings and the combustible matter recovered from the picking-table refuse are burned, a scraper conveyor 175 ft. long discharging the fuel in front of each boiler as needed. Windows are conveniently located for the unloading of coal from railroad cars from a track provided for the purpose, for use when the mine is not in operation or when the conveyor is down for repairs. Provision has also been made for the installation of an ash conveyor which will be added later. The room is well ventilated by means of louver ventilators directly over the breeching.

The location of the boiler room is such that no long steam lines are required, a minimum distance being obtained for each steam unit. The steam from each boiler is conducted through 6-in. inverted U-bends and collected in a header 18 in. in diameter and 30 ft. long, whence it is distributed to the engines, each engine being served by a separate line directly from this header. Exhaust steam from the hoisting engines and feed pumps passes through the miners' washhouse and assists in heating same. Exhaust from the generators passes through the feed-water heater.

Ample supply of good boiler water is insured by a storage reservoir covering 7½ acres to a depth averaging about 8 ft. This reservoir was formed by constructing a dam across a natural drainage basin conveniently located. The overflow is carried away over concrete spillways.

The engine room is 50x50 ft. The floor is 3 ft. higher than that of the boiler room, steam and exhaust pipes



THE PLAN OF MINE DEVELOPMENT

being conducted to and from the various units underneath this floor, which is of concrete slab construction.

The hoisting engines are 26x42 in. in size and are equipped with a steam reverse. They were manufactured by the Crawford & McCrimmon Co., of Brazil, Ind., being the second pair of this size built by this company, the first pair having also been placed in this field. The drum, as mentioned previously, is 7 ft. in diameter and is grooved for a 1⅜-in. rope.

Electric power is supplied by a 300-kw. direct-current 275-volt Ridgway direct-connected generator unit, and also a 165-kw. direct-current 275-volt Fort Wayne generator direct-connected to a Ballwood engine. Space is provided for the addition of another large unit when required.

Construction of Engine Room

The engine room is well lighted and is ventilated by large windows with pivoted sash and also by three large circular ventilators in the ridge of the roof. The construction of the power house presents an unusually pleas-

ing architectural appearance for a building of this kind. The walls, which are of red rustic brick laid in black mortar, rest on a foundation wall of concrete.

The main shaft working bottom is 400 ft. long, with double track, providing ample room for the reception of two motor trips of 20 loaded cars each on each track. Cars are caged from one side of the shaft, 400 ft. of double-track storage space being provided on the opposite side of the shaft for empties.

The accompanying sketch shows the plan of mine development, which is on the panel system. Forty rooms are apportioned to each panel. They are driven on 50-ft. centers, 30 ft. wide and double tracked. The main entries are triple, the cross-entries and room entries are double and are driven 15 ft. wide on 40-ft. centers. The shaft pillar is 640x850 ft. in size. It will be noted that development proceeded from the airshaft in a nearly symmetrical arrangement of entries, the same distance being driven east and west from the airshaft before turning north to approach the working bottom at the main shaft. Other entries were driven straight north connecting with the main shaft and turning east and west from it. In this manner local grades were revealed and taken advantage of in preparing the caging bottom, it being equally convenient to use either side.

The track in rooms is of 20-lb. rail; that in entries 30-lb. and 40-lb. rail. Track gage is 42 in.

Gathering and haulage is accomplished by electric locomotives. The present output is handled with two Goodman 5-ton and one Jeffrey 5-ton gathering locomotives. Mine cars are heavily constructed of wood. They are low and easily loaded and have a capacity of 3 tons. They were built by the Fulton Pit Car and Manufacturing Co., of Canal Fulton, Ohio.

Permissible Explosives Cause Strike

The coal is undercut to a depth of 6 ft. 6 in. by Jeffrey 28-A shortwall machines and shot by permissible explosives. In connection with the latter it may be mentioned in passing that early in the development of the mine a strike was precipitated over the installation of permissible powder, the mine suffering an idleness of 10 weeks on account of the refusal of the miners to accept this form of explosive. The management of the mine, having keenly in mind the principles of "safety first," stood firm in its resolve to adopt this safer method of shooting and prepared to shut the mine down indefinitely unless its wants were complied with. At the end of 10 weeks the miners returned to work at the order of their national officers.

The explosive is stored and maintained at the correct temperature in a steam-heated storage magazine 12x18 ft. in size, of brick, concrete and steel construction.

The management is progressive and in tune with the modern ideas of coal production. "Safety first" is no empty slogan at this mine, and the first-aid movement has received liberal support. In fact the first-aid team of the company holds the championship of the state, having won this honor at the Bicknell meet on Oct. 30, 1915, against 21 competing teams, a full account of which appeared in *Coal Age,* Vol. 8, No. 22.

Plans are being formulated for the construction of another mine of similar design and capacity, to be located southeast of mine No. 1 on the present holdings of the company.

Extracts from a Superintendent's Diary

Now that the demand for scrap iron has again become normal, we have been making an effort to turn our immense piles of accumulated scrap into money as quickly as possible; and looking toward that end our floating-gang boss has been instructed to employ every man who passes through the camp inquiring for work. Even when able to discriminate, our floating-gang boss has a rather motley crew, but now under the stress of circumstances he has representatives from every trade and almost every nationality; and in consequence he overhears some very interesting conversations while attending to his duties.

Some of the recent additions were undoubtedly only a few years back "soldiers of fortune," but at the present time their physical appearance precludes the possibility of associating them with any words that suggest so much romance.

Having a little idle time on my hands today, I sauntered out in the direction of the siding where the flatcars are being loaded with scrap, and after watching the work from a distance for some time, finally walked over close enough to be within hearing distance of the men doing the work. It suddenly occurred to me, after listening to a few of their remarks, that here was an opportunity to study at close range the type of men responsible for most of the problems of unemployment that become so acute in all of our large cities with each change of the moon.

I soon decided, however, that even the coal-mining industry contributes its quota of unfortunates to the army of derelicts, and my previous assumptions that permitted me to comfortably shift all of the responsibility upon the shoulders of others were not well taken, to say the least.

One of the men in the gang had been a coal miner most of his working years and had finally been compelled to give up his occupation because he had trouble "getting his breath" underground. He was then too old to learn a trade that might comfortably support him, and he had drifted about from pillar to post. Another had worked in the mines until he was well along in years and then had been compelled to change on account of rheumatism. They did not relate these incidents in their lives to me, nor were they told for my benefit; they simply came out in the general talk that was participated in by all. It happened that neither one of them had been around a coal-mining camp for several years previous to their advent today into ours. Both declared that they would see to it that they did not get into another coal-mining camp soon, for it made them sad to think of their changed fortunes.

It is more than probable that neither one of them has ever been thrifty and that each has had ample opportunity to provide against old age; but a consideration of their ups and downs, what they might have been or might have done, can't affect their fortunes now, and the fact remains that they have joined the great army of the chronic unemployed. But since I have learned of their presence there, I can no longer sit snugly by and insist that I am not concerned with the nation's problem of unemployment.

Broadening one's vision has its drawbacks as well as advantages.

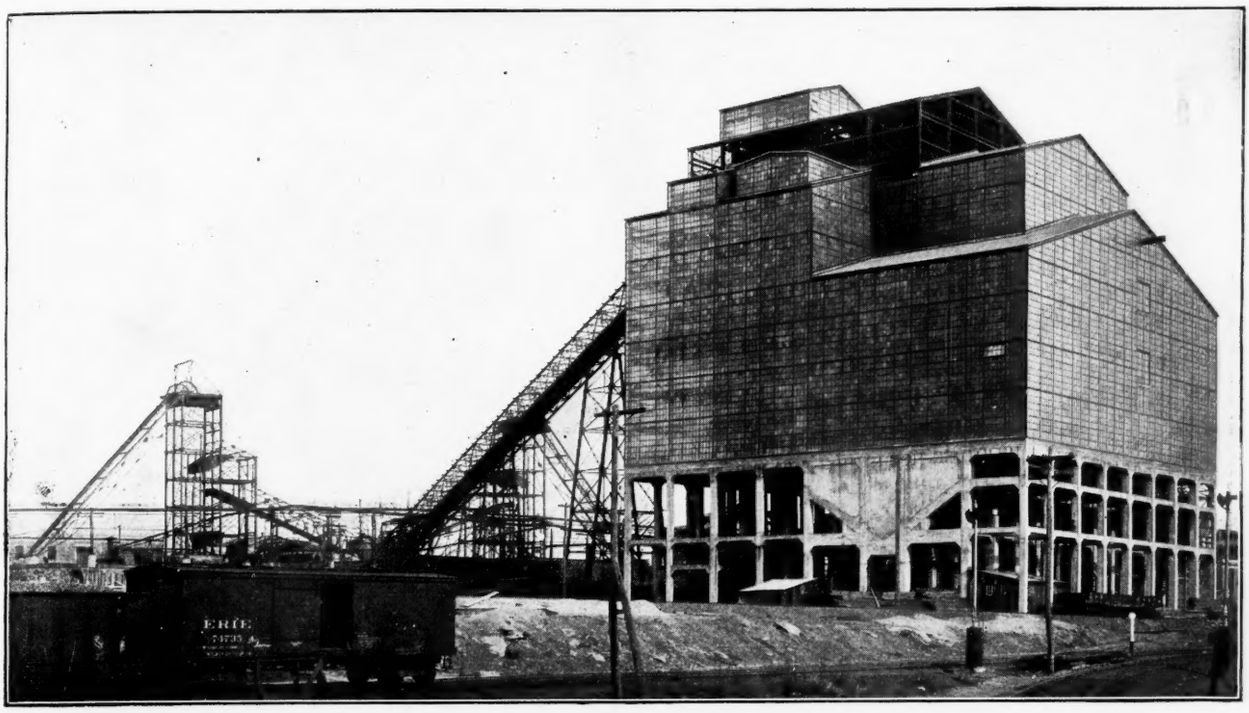


FIG. 1. THE D., L. & W. R.R. CO.'S LOOMIS BREAKER AT NANTICOKE, PENN.

The Loomis Colliery

By C. M. Young*

SYNOPSIS—The newest and largest colliery in the anthracite region possesses many features not found elsewhere. The breaker is inclosed in glass, is steam heated and is a comfortable and healthful place in which to work. Its annual capacity will be nearly two million tons.

In writing about any large institution one naturally tries to get at the ideas that were dominant in the minds of its designers. So in studying a new colliery of one of the anthracite producers one tries to see what ideas it stands for, knowing that it represents the experience of the builders and some of their hopes. The Delaware, Lackawanna & Western is one of the oldest of the anthracite operators as well as one of the largest. Its experience covers the entire history of anthracite production on a large scale. So when one finds it doing something in any way unusual he knows that there is reason for it in the wide knowledge of the company and that it represents the trend of the changes taking place in the anthracite industry.

Loomis is the latest and the largest of the collieries of the Lackawanna. It is near Nanticoke, across the Susquehanna River from the old Avondale colliery, whose fire is a marker in the history of anthracite mining, being responsible for the law requiring more than one opening. It is near the Nanticoke central power house, also a Lackawanna institution, which supplies power to all the company's workings in this part of the district.

The coal lies mostly to the south of the surface plant, and the mine openings are located near the foot of the south side of the basin which underlies the valley. The situation of the beds with reference to the surface and the river is such that there will not be much water to pump. This is especially interesting in connection with the fact that Avondale, across the river, produced last year 54 tons of water per ton of coal.

It is the quantity of available coal which explains the willingness of the company to make the immense expenditure represented by this colliery. This explains also the scale on which it has been planned. There are here 1,247 acres of virgin coal, with seven beds workable under present conditions; and to the coal of this tract is to be added what remains at the Auchincloss colliery, which is about half as much as that at Loomis.

It is here that concentration of working appears. There is already a breaker at Auchincloss, but it is to be abandoned, and the coal there mined will be transported on the surface to the Loomis breaker, because the company believes that such concentration is good business. Thus only one surface organization will be maintained.

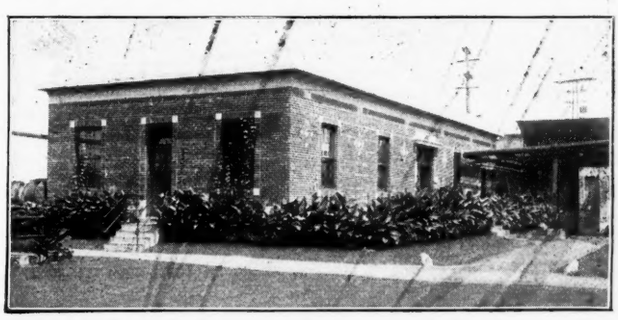


FIG. 2. MINE OFFICE AND STOREHOUSE

*Scranton, Penn.

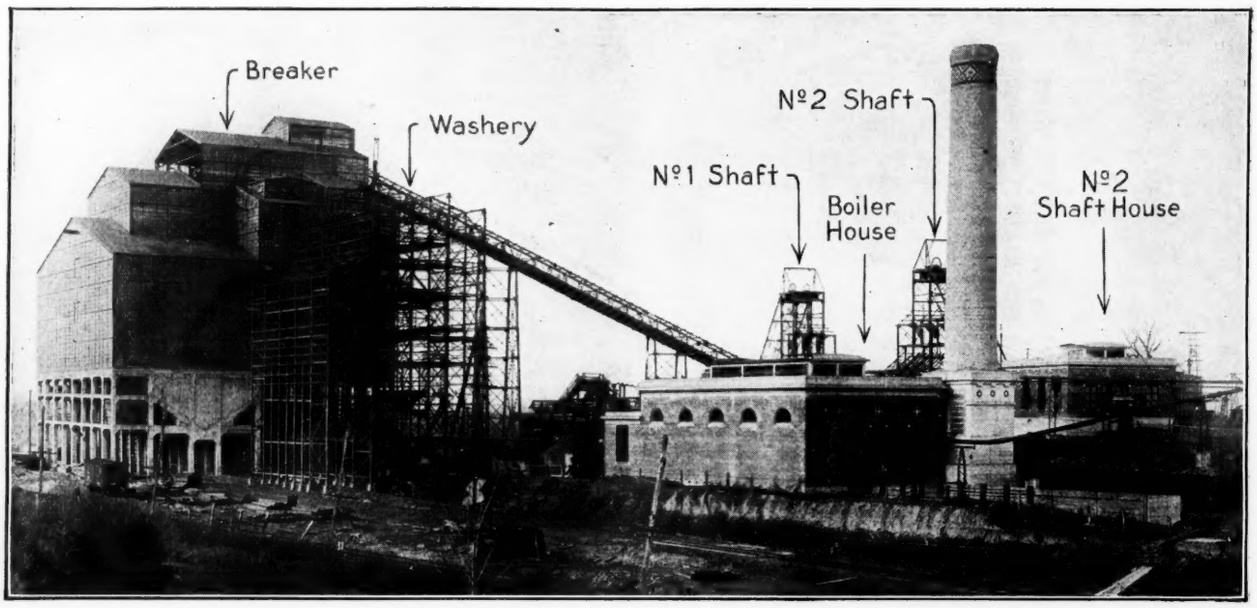


FIG. 3. GENERAL VIEW OF PLANT WHILE UNDER CONSTRUCTION

The coal at Loomis is reached by four shafts, and when the output from Auchincloss is brought here, seven openings will be furnishing coal for the one breaker. Of these shafts, No. 1 and No. 2 are on opposite sides of the elevator leading to the breaker. Each has four compartments—two for hoisting, one for pipes and wires and one for air. Self-dumping cages are used, and the coal will go through chutes to the elevator. This elevator is a Monobar dragline operated by a 150-hp. induction motor.

Number 3 shaft is near the central power house. This is also a four-compartment shaft. It is 14 ft. by 50 ft. 4 in. outside the timbers. As the timbers are 10x12 in. laid flat, the dimensions inside them are 12 ft. by 48 ft. 4 in. This shaft is not yet finished. As it is sunk in the drift near the river, the drum method of sinking has been employed. The Lackawanna adopted this method of sinking through soft ground some years ago and was the first company to use it in the anthracite district.

In this case a little trouble was occasioned by a slight change in the location of the shaft. This change, of only a few feet, brought one corner of the drum onto a ledge of rock about 15 ft. above the main rock floor of the valley. This is a good illustration of the fact that the valley of the Susquehanna was formerly deeper than it is at present and that it has been filled with drift.

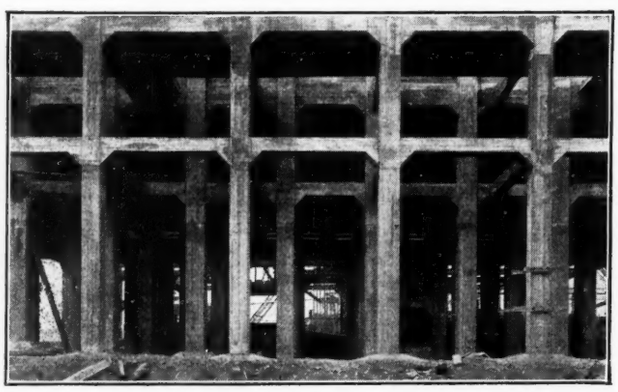


FIG. 4. CONCRETE FOUNDATION OF LOOMIS BREAKER

The fourth shaft at the colliery is the Old Dundee. This was sunk by English capitalists more than a half-century ago, before the days of the machine drill. In those early days there was no means of ventilation except the furnace. This was inadequate here, and an explosion occurred which led to the abandonment of the undertaking in 1859, the year of the starting of the fire at Summit Hill. This old shaft is now being widened and will be part of the most modern of the anthracite collieries.

Arrangement at Shaft Bottoms

At the bottoms of Nos. 1 and 2, loaded cars will come to the shafts from opposite directions. Empties will go by gravity to kickbacks situated between the shafts and then to the empty tracks. At the bottoms of these shafts all timbers except the guides have been taken out, so that the bottoms are unobstructed. Fig. 8 shows the bottom of No. 1 shaft as it is at present in the Hillman bed. It will be seen that the top is supported by steel I-beams set on concrete walls. The spaces between the beams are occupied by sheet steel arches, some backed with concrete and some with loose material. It will be observed also that the bottoms are roomy and well-lighted. Near each shaft bottom is a fireboss' office at which the men are registered when they enter the mine. There is no opportunity for entering by any shortcuts, and there will be no doubt about the presence of any man in the operation.

When leaving the mine the men will pass through a narrow passage, wide enough for only one person, from a waiting shanty at the shaft bottom. This will prevent any crowding at this point. The exit from this passage is shown on the right in Fig. 8. A similar plan is followed on the surface, where the railed walk between the lamphouse and the shafts is wide enough for one person.

The same picture shows a wooden side rail in place beside the tracks. This is used to support the wedge-

shaped blocks, which are used instead of ordinary sprags to stop the cars.

Each shaft has a Vulcan hoist with conical drum and corliss valve gear. The shafts at present are only about 930 ft. deep, but when the occasion arises they will be sunk to the lowest bed, or about 1,900 ft., and the hoists were designed for this depth.

Two fans are set on opposite sides of a common engine room. It is not intended that both shall be used at the same time, and the installation of two is merely a precaution. The fans are 8x20-ft. multiblade Jeffreys, driven by Ridgeway engines.

The fans, hoists and a compressor are the only machines about the colliery operated by steam, electricity being used for everything else. Steam comes from a boiler house, which is shown in Fig. 3. It has three 300-hp-boilers made by the Erie City Iron Works, and one more is to be added. The fuel is No. 2 barley. This fine coal has not been successfully burned until recently. It is of course necessary to use forced draft, and at the same time the velocity of air through the fuel bed must be low in order that the coal shall not be blown out of the furnace. The draft is regulated so that the fuel is slightly in suspension. It is not blown out, but does not settle into a tight bed. This is attained by close control of the air supply. Pressure is furnished by a fan whose speed is regulated by the steam pressure. The stack dampers are controlled by the air pressure in the firebox. With this arrangement the draft is always balanced. The grate has 4 per cent. of air space.

The Breaker Is Interesting

Naturally the breaker is the center of interest, and this is a mammoth among structures of its kind. Its capacity is 7,500 tons per day, which is greater than that of any other. Working 250 days, it can handle 1,875,000 tons of coal in a year. The supply of coal is so great that the breaker is sure to be operated for a long period, and it is not impossible that it, or something replacing it, will be preparing coal a hundred years from now. No other breaker has been built with such large ideas in mind, and there is no precedent for some of the things

FIG. 5. A FOREMAN'S HOUSE

done, but there is a large experience behind them. The Truesdale breaker of the same company now holds the record for a year's output.

The first thing that one would notice is that the entire breaker above the pockets is glazed and there is no blind wall. The whole breaker is inclosed with steel sash, which holds 22,000 panes of wire glass 13x24 in. in size and ¼ in. thick. There have been other "daylight breakers," but none so completely opened to light as this. Glass covers 93.5 per cent. of the surface. Artificial lighting will be needed only for short periods on some winter days. Increased carefulness in picking is anticipated, as well as higher speed.

The building is of concrete up to the tops of the pockets, and the concrete work is unusually good. Above this it is of steel. There are in the building something over 2,000,000 lb. of structural steel. Wood is not entirely eliminated, but it is used only for picking floors and chutes. There is almost no possibility of fire, but sprinklers will be installed. The floors are of concrete.

The heating of such a building is a large problem, and it has been attacked here in a way that is new to the anthracite district. Glass transmits heat about four times as readily as wood, so that much heat would be required

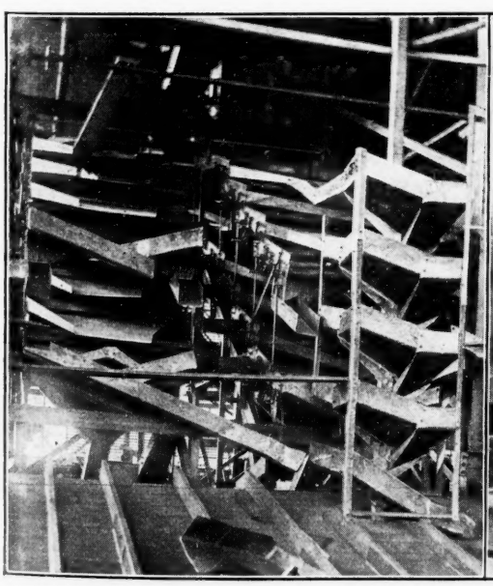


FIG. 6. DEVERS SLATE PICKERS AND SPIRALS

FIG. 7. END OF SHAKER, SHOWING ARRANGEMENT OF CHUTES

to raise the breaker to the ordinary temperature of such buildings in winter, but here much more is to be done and the breaker is to be kept at a comfortable temperature. The plan is to heat it to 65° to 70° in zero weather. Heating to above freezing point is not a necessity of operation, as the breaker is dry and there is nothing to freeze. The idea is to make this a comfortable place in which to work.

The steam for heating is the exhaust from the hoisting engines, fan and compressor. This will come to the breaker at a pressure of about 3 lb. gage. The radiating surface is 40,000 ft. of 2-in. pipe in addition to the headers and mains. Assuming a condensation of ¼ lb. per hr. per foot of radiating surface, the condensate will amount to 11,250 lb. per hr. This goes through a 6-in. pipe and an oil separator to the feed-water heater. No steam is to be exhausted into the air, but any not required for heating will go to the feed-water heater. To provide for any deficiency of steam there is a 3-in. steam line from the boiler house.

The piping is arranged so that any side or any section can be cut out, so that it will not be necessary to use more than is needed. On a moderately cool day with a brisk wind it might be necessary to have steam in only the pipes on the windward side. The steam fitting is the work of Gaylord & Butler, of Scranton, who have had much experience in such matters and who coöperated with the Lackawanna men in planning the work.

The plan of preparation is simple. The coal divides at the top of the conveyor, and each part goes to the mud screen of one side. The breaker has two sides, which are duplicates. At present one is nearly finished, and coal will be treated in it while the other side is being completed.

The mud screens are three-decked shakers. The oversize goes to steel picking belts and then to rolls. The rest of the coal goes through the usual preparation of the dry breaker. This breaker is entirely dry, and no water is used, even on the screens. This practice is followed because it is believed that dry separation is better than wet and because dry coal is more easily handled, especially at tidewater.

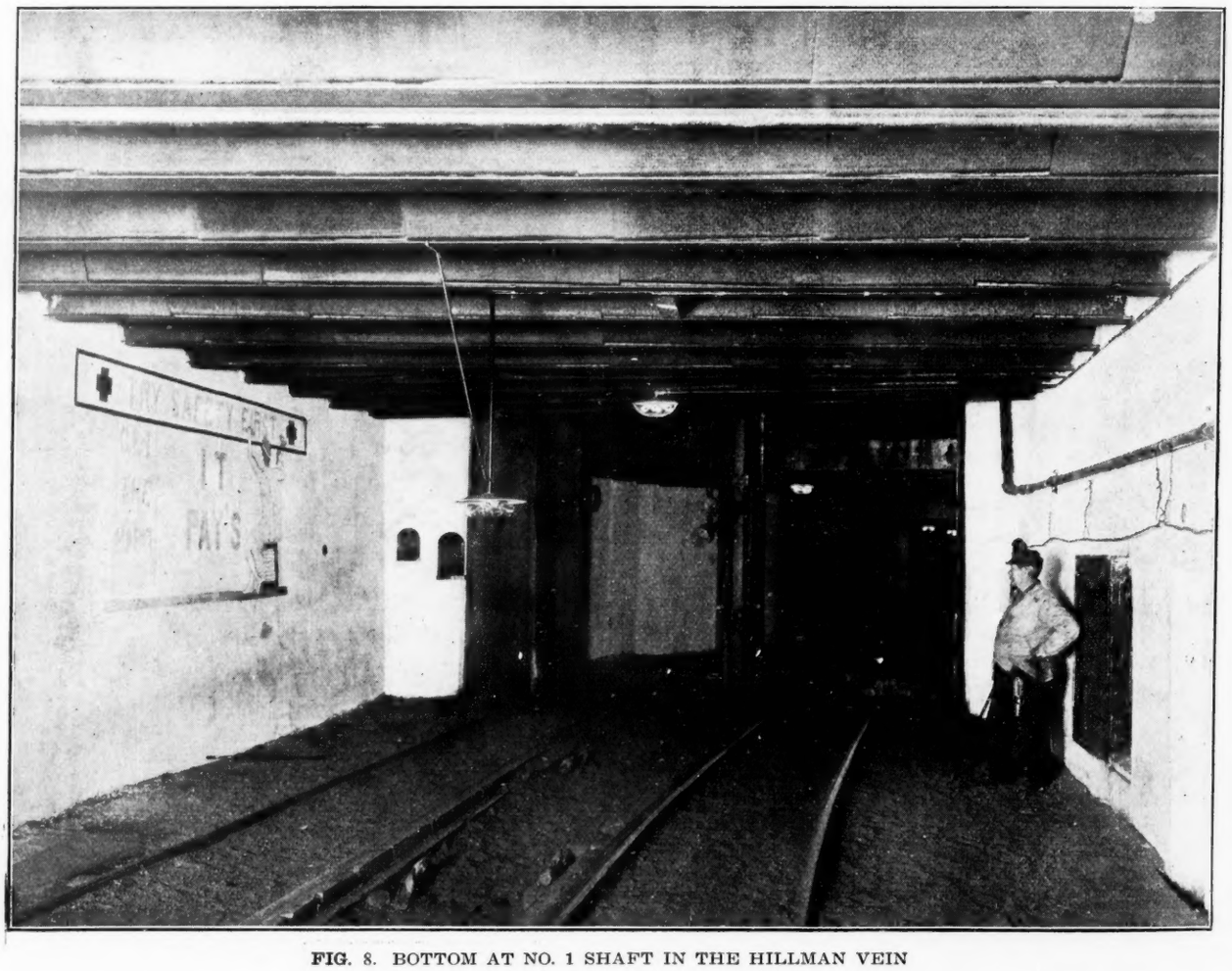


FIG. 8. BOTTOM AT NO. 1 SHAFT IN THE HILLMAN VEIN

One thing that is somewhat unusual is the intention of preparing pea coal in the breaker. This will be something of an experiment, though it has been accomplished before. If it should prove undesirable to treat the pea here, it will be taken to the washery, which is a separate building not yet completed.

Prevention of dust will be carried farther than has been attempted in any other dry breaker. All rolls, screens and hoppers and even the lip screens will be inclosed and connected to a suction system which will draw out the dust. The air of the breaker will be changed from four to six times per hour. This will insure healthful and pleasant conditions for working, as this rapidity of change is more than enough for good ventilation.

The only mechanical pickers are Devers slate pickers and spirals The picking chutes are set near the outsides of the breaker, where the light is best, and the mechanical separators are nearer the center.

There is a new arrangement of chutes, shown in Fig. 7, which ought to give good results. It is customary where a chute carries more coal than can be picked by one person to put more than one picker on the chute. In this case each picker, except the first, is picking coal which has already been partly picked. Also it is impossible to fix responsibility for the work, except by the unfair method of holding the last picker responsible for all of the work. The new plan is to put the pickers in parallel. As many chutes as necessary lead off at right angles to the main chute. These all join the clean coal chute, which is parallel to the first. The refuse chutes are in the angles between the main chutes and the branches. The pickers stand in the spaces between the chutes, and each handles his share of the coal.

These are some of the noticeable things about the new colliery of the Lackawanna. It is so large and planned on such a scale that it seems fitting to describe it by the word monumental. It is as if the company, having this unusual opportunity, had put all the gains of its past experience and its belief in the future of the industry into a colliery which stands as the Lackawanna's ideal.

Conference on Standardizing of Mine Reports

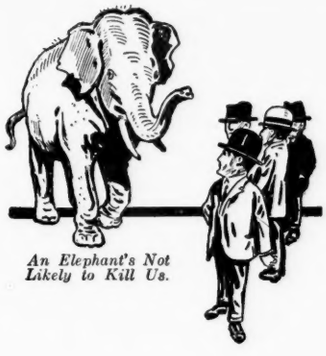
A full report of this important conference, held last week in the National Museum, Washington, D. C., and attended by a large and representative body of mine inspectors and industrial commissioners, was prepared for this issue of *Coal Age,* but is now held over for next week, when it will be given the prominent place it deserves. The conference was the first of its kind and its results will be far-reaching.

THE LITTLE THINGS

Written Expressly for Coal Age by R. T. STROHM

We've Reckoned so Often in Millions.

Studies How Mishaps May Best Be Prevented.


An Elephant's Not Likely to Kill Us.

So long we have worshipped the mighty Colossal
And bended the knee to the fetish Immense,
The thoughtless are likely to class as a fossil
The fellow displaying a glimmer of sense.
We've sacrificed much of our balance and saneness;
Our sense of proportion is sadly awry;
Instead of a vision of clearness and plainness,
We're cursed with a squinting defect of the eye.

We're dizzy with pride at amassing our billions;
We're drunken with power and vain with success;
We've talked and we've reckoned so often in millions
That now we are scornful of nickels or less.
By such utter folly, by shams and pretenses,
Our brightest and hopefulest plans will be wrecked,
Unless we recover our poise and our senses
And treat minor matters with proper respect.

The boss tries to render his workers contented
And schemes for their welfare to gain their good-will;
He studies how mishaps may best be prevented
And hastens to care for the injured or ill;
While underlings work in a manner pernicious
And kill every chance for success of his plan
By being tyrannic and over-officious
And treating the miner as less than a man.

An elephant's not very likely to kill us,
Because he's so big we can see him and run,
But when we're attacked by the tiny bacillus
We're knocked out completely, ten chances to one.
A hundred small losses, viewed singly, are trifling,
But all in a lump they're a stunning amount;
Yet still we are stubbornly, foolishly stifling
The truth that details are of vital account.

The Labor Situation

SYNOPSIS—The interstate operators and miners resumed their session on Feb. 24 without result, the deadlock at first appearing to center around the miners' requirement that payment be made for all coal, large and small, delivered at the tipple. On Mar. 1 the miners abandoned the mine-run issue and reduced their demands for higher wages. Operators offer a counter proposition.

On Feb. 24 the interstate conference of operators and miners met at the Hotel McAlpin, having been adjourned from Mobile, Ala., Feb. 17. The chief obstacle to a settlement of the differences between the bituminous coal operators and the United Mine Workers seemed to be the requirement that payment for coal shall be on a mine-run basis as set forth in demand No. 1. The miners continued to furnish objections to any method of payment by which the amount earned is based on the screened coal only.

The miners' representatives on the subcommittee argued all Friday and Saturday in an endeavor to show that this demand would not injure the operators' interests. At the same time the operators themselves were not idle and had their accountants preparing a statement in rebuttal. As both sides had their minds made up in the first instance argument was almost entirely futile.

The failure to come to an agreement resulted in delaying the meeting between the anthracite operators and the miners which was scheduled for Monday, Feb. 28. The conferees decided to extend their meeting till last Thursday, Mar. 2, at 1 p.m., John P. White, the president of the United Mine Workers, believing that an agreement could be signed by that time.

When the joint subcommittee met on Thursday it was announced that Hugh Shirkie, who had presided at the Mobile conference, would be unable to attend, and J. C. Kolsem, who also comes from Terre Haute, was chosen in his stead. William Green was again elected secretary, and C. E. McLaughlin was reëlected as his assistant.

Miners' Leaders Are Hopeful of Settlement

The miners earlier in the day had expressed themselves as believing that, as most of the preliminary work had been done at the previous conferences in Mobile, the new agreement would soon be arranged. On the other hand, one of the operators said it would probably be several days before an agreement was reached, "if at all."

The membership of the subcommittee is not precisely the same as at the Mobile conferences, and for this reason the names of the conferees are given as follows:

Operators—John A. Donaldson and W. W. Keefer, of Pennsylvania; Horace Robbins and C. E. Maurer, of Ohio; P. H. Penna and J. C. Kolsem, of Indiana; C. M. Moderwell and T. T. Brewster, of Illinois.

Miners—Edward Stewart and William Mitch, of Indiana; Frank Farrington and Frank Hefferly, of Illinois; John Moore and G. W. Savage, of Ohio; Van Bittner and F. P. Hanaway, of Pennsylvania.

John P. White and Frank J. Hayes, respectively president and vice-president of the miners' organization, attend the conference, but have no vote.

At the conclusion of the first day's conference neither the miners nor operators would discuss what had transpired, but it was learned that Mr. White had led the argument for the miners. During the session the operators were in receipt of many telegrams, and it was reported unofficially that they were from the heads of industries now engaged in the manufacture of war munitions.

Operators Ask What Mine-Run Scale Will Cost

On the day following the operators asked the miners' representatives to confer among themselves and arrange tabulations showing what it will cost the operators should they adopt the mine-run basis of paying for coal. It was said the suggestion originated from the Pennsylvania operators and that they believed the information sought will enable them to deal more effectively with the other demands of the union.

The operators also suggested that the miners surround the mine-run proposition with all the checks and safeguards that are provided in Ohio and Illinois. Accountants for the operators also prepared their statistics, and it was expected that the joint conference would be resumed during the afternoon. The miners were not ready, however, and the meeting was adjourned until 9 o'clock the next day, Saturday.

At the end of the day Mr. Hayes expressed himself as hopeful of a quick and happy termination, saying, "The whole matter is technical, and when people deliberate in figures, they are down to brass tacks and business."

No joint session was held on Saturday, the miners still being in consultation over their figures, although the operators said they were ready to proceed. Then an adjournment was taken to Monday morning, and the anthracite conference that was called for that day was put over until Thursday, Mar. 2.

At the conclusion of the conference on Monday the miners' representatives expressed themselves as pleased with the day's work and believed that an agreement was but the work of a few hours or a couple of days at the most. The operators were not so hopeful. The conference, which began at 9 o'clock, continued without lunch until 3, although the hour for adjournment had been set for 1.

Anticipate Increase of 3 to 5 Per Cent.

Some of the operators believed that the miners would be granted the mine-run system now in force in Ohio, and one operator also conceded a slight advance of from 3 to 5 per cent. Other operators were strongly against this program. It was contended that if the mine-run plan is adopted and the other demands are granted it will make a total increase of 11c. per ton. Much objection was made to this. The operators from western Pennsylvania firmly objected to the mine-run system being added to further increases in the wage scale.

At the end of the day it was said that no further progress had been made than was reached on Saturday. The Illinois operators held a consultation among themselves later in the day.

Mr. Moderwell called the meeting the "first class in mathematics." Another operator said: "We want to find out how much it is going to cost if we grant the demands and that is why we asked the miners to figure up the mine-run proposition. Then we will determine what, if anything, we will concede."

When the conference adjourned after 4 o'clock on Tuesday the conferees were no nearer an agreement than on the previous day. The two sessions were devoted to a discussion of the mine-run basis and its equivalents.

There were several reports during the day as to what had taken place in the committee room, but no one would make a definite statement.

Shortly before noon there was a heated discussion, and then the operators left the room, the miners remaining behind to go over their statistics and straighten out some differences. It was said the mine workers disagreed among themselves as to their figures. The conference was resumed shortly after 2 o'clock and did not adjourn until after 4 p.m.

Miners Lower Their Demands Considerably

When the conference was resumed Wednesday morning a new wage scale was before the body for consideration. It had been submitted by the miners and is a modification of the original demands. It provides for an increase of 5.39c. per ton in the present western Pennsylvania rate for machine-mined coal and 3c. per ton to the present rates for all other classes in the four states—Pennsylvania, Ohio, Indiana and Illinois. The morning session broke up shortly after 11 o'clock, the miners remaining in conference. The present rates and the new prices demanded follow:

Machine mining—Western Pennsylvania, present rate 44.61c., new rate 50c.; Illinois, Danville district, present rate 51c., new rate 54c.; central Illinois, present rate 54c., new rate 57c.; southern Illinois, present rate, 50c., new rate 53c.; Ohio, present rate 47c., new rate 50c.; Indiana, punching machine, present rate 51c., new rate 54c.; and Indiana, chain machine, present rate 48½c., new rate 51½c.

Pick mining—Illinois, Danville district, present rate 61c., new rate 64c.; southern Illinois, present rate 57c., new rate 60c.; central Illinois, present rate, 61c., new rate 64c.; Indiana, present rate 61c., new rate 64c.; Ohio, present rate 67.10c., new rate 70.10c.; western Pennsylvania, present rate 56.11c., new rate 59.11c.; and western Pennsylvania, thick vein, present rate 64.64c., new rate 67.64c.

In the afternoon the operators voted down the foregoing proposition and offered an increase of 3.39c. per ton in western Pennsylvania and 1c. in all other districts. The miners re-

jected this offer. The Illinois operators did not vote and the miners claimed it was because those operators favored the miners; but the operators declared it was because the Illinois mine owners were against all concessions, which is more likely. A further conference was held in the evening.

More Decisions of the Conciliation Board

In the anthracite region the conciliation board has decided that the contract miners of the Harwood colliery of A. Pardee & Co. must be paid for filling a car of coal on the basis of the corrected measurement. Hitherto the volume of the car was figured as 101 cu.ft. Hereafter the volume shall be taken as 106.25 cu.ft., and the payment per car shall be regulated accordingly.

A second complaint from the miners in the Harwood colliery was also decided in their favor. The rates for chutes with props and timbers are made $2.33 and $2.47 respectively, instead of $1.93 and $2.04 which the company has been paying.

The miners of the Harleigh colliery of G. B. Markle Co. asked that they be placed on daywork in the performance of certain pillar work. In this case also the decision was given to the miners, the company being required to pay day wages in all cases similar to those submitted.

Industrial Workers of the World Join Union

Last week an account was given of the strike in the Greenwood colliery of the Delaware & Hudson Co. It was explained that the miners in the union wanted to work, but the many men affiliated with the Industrial Workers of the World made that impossible by reason of their abstention. However, the union has made so many converts that work has been resumed in accord with a motion to that end passed by Local 1036.

The company superintendents, E. R. Pettebone and C. Dorrance, refused to treat with the men, declaring that the contract, which does not expire until Apr. 1, 1916, required that the miners present their grievances to the company and to the conciliation board before going on strike.

Miners Will Enter More Actively Into Politics

The tridistrict board of the anthracite region has listed the legislative reforms it desires to see carried, and the entry of the miners into politics is to be anticipated throughout the United States; for in Great Britain they already constitute a strong political force, electing their own members of Parliament, and at one time, before the days when such representatives were paid by the state, the miners themselves paid for their services. It is inevitable that an attempt will be made by British miners in this country to do what they have succeeded in accomplishing in the British Isles. The legislation sought as listed in the call of the officers of the tridistrict board is as follows:

1. An amendment to the workmen's compensation law, increasing the amount to be paid for total disability and extending the time for which payments shall be made; also compensation for occupational diseases.
2. The enactment of an old-age pension law.
3. The extension of the bureau of the unemployed so as to make it operative in all parts of the state in the most effective manner.
4. An amendment to the law providing for mothers' pensions, increasing the amount to be paid such persons as may be dependent upon the charity.
5. An amendment to the state constabulary law, more clearly defining the rights, powers and duties of the force to the end that there may be no conflict in the authority between municipal guardians of the peace and the state organization.
6. Improvement of the mining laws following several suggestions heretofore made to the legislature by the representatives of labor.
7. Legislation to compensate the parents when children are forced under the law to relinquish jobs in order to attend school.
8. The repeal of the law by which public-service corporations compel payment for water, light, gas and electricity that is not used. In other words, the repeal of the so-called minimum rate, which is nothing more nor less than the special privilege to commercially rob and plunder the smaller consumers.

Union Will Try to Organize the Strip Pits

C. J. Albasin, of the No. 6 subdistrict in Ohio, known as eastern Ohio, has been ordered by President J. P. White to "organize the strip-pit mines at any cost." There are unorganized strip-pit operations, one at Parlett, one near that village known as the Witch Hazel mine and one at Smithfield, all on the Wabash Pittsburgh Terminal Ry. in Jefferson County. The Beech Flat mine is organized and has been for some time, but the union is desirous of securing an increase in scale.

At Parlette a strike was declared two weeks ago because the company refused to pay the scale already in operation at Rush Run, and $6 has been paid by the union to each of the striking men, of whom there are 40. Marco Roman is organizing the men and conducting the strike.

The Brotherhood of Steam Shovelmen have contended for jurisdiction over the steam engineers, but as usual the United Mine Workers oppose the claim. The mine worker's union is not a union for miners only, but for everyone in the industry. It is one of the examples of industrial unionism as opposed to trade unionism. In the erection of a building twenty different trade unions may be represented; in the operation of a coal mine there is but one union—the United Mine Workers of America. As it covers a whole industry it is called an industrial union. All carpenters, steam engineers, machinists working around the mines wherever there is a union belong to a common industrial organization—the United Mine Workers of America.

When Force Is Reduced Who Shall Be Laid Off?

Near Booneville, Ind., at the Big Four mine the management decided to close a portion of the mine, laying some of the men idle. Those who were discharged have threatened those who retained their jobs if they continued at work. The idle men want the work divided among them all, but those who were continued at work refused to make this arrangement and are upheld by President John P. White and the district officers of the union.

The Ayrshire miners have espoused the cause of the idle men and have threatened trouble. Sheriff Centry, hearing that a telephone threat had been made by the Ayrshire miners that they would raid the Big Four mines, has asserted that he will swear in extra deputies to protect the 70 men threatened, and the local union is trying to obtain an injunction to restrain the Ayrshire miners from interfering with the working of the Big Four mine.

Those who are desirous of seeing an increase in wages in West Virginia to justify a higher wage scale in other states will be glad to note that the Chesapeake & Ohio Ry. has just given its telegraphic operators a 7-per cent. increase to date from Mar. 1 and has announced that all men who have been with the company 10 years will be given a 20-day vacation during the year.

The miners in Iowa will probably ask a 20-per cent. increase in wages, but they will not favor a suspension unless a contract cannot be made.

Urge Company To Give Local the Check-Off

Recently about 300 miners went on strike at No. 6 mine of the Oklahoma Consolidated Coal Co., near Dewar, Okla., because the company refused to pay the check-off to the local union. The district executive committee ordered the men to return to work, and the mines have resumed operations. It appears that a committee of miners from No. 5 demanded that the check-off dues be withheld from the local union, and when the men of No. 6 mine demanded that the money be paid over, their demand was refused, and accordingly they went on strike.

Mike Broshears, a miner who claimed compensation from the Oklahoma Consolidated Coal Co. because it excluded him from its mines for his alleged activity in United Mine Workers' affairs, has lost his suit against the company.

Varying Action on the Liquor Question

A correspondent calls attention to the contrast between the enforcement of Rule G by the Hudson Coal Co. and the alleged action of the Rochester & Pittsburgh Coal and Iron Co. The former concern declared it to be its intention to discharge all salaried men who were seen entering a saloon or leaving it and were known to be addicted to intoxicating drink. The R. & P. C. & I. Co. is said to have discharged its chief engineer because he ventured to vote for a "dry" judge. An editorial in a local paper has since attempted to justify the action of the company by saying that it could not secure or hold miners where liquor is not obtainable, and thus the company was justified in requiring the officials to work for its interests.

Perhaps this was the course of reasoning of the company, though that is questionable. It is certain that a saloon is not now found an advantage in a mining town. It may bring in new men, but it also drives them away. It may for a while add to the mining force, but it reduces the product. A further reason is needed to justify even economically the seeking of a license at mines if coal output is desired. The recent explosion at the Ernest mine should make everyone anxious to see that the mine is worked and managed by sober men, though there is of course nothing to show that intemperance had anything to do with that disaster.

Who's Who in Coal Mining

W. W. Inglis

The vacancy in the forces of the Delaware, Lackawanna & Western Railroad Co. caused by the death of Arthur C. La Monte has been filled by the appointment of Major W. W. Inglis to the position of general manager of the coal department. For the first time in a long period the Lackawanna has gone outside of its own organization to fill an important position. Apparently it was decided that the company needed a certain man, and nothing was allowed to stand in the way of getting him.

Major Inglis has been general manager of the Pennsylvania Coal Co. for several years, so he enters the new position with a record of successful experience which has been gained in the field in which his work will continue. The conditions in the northern part of the anthracite

W. W. INGLIS
General manager of the coal department of the D., L. & W. R.R. Co.

district are quite different from those of the southern part, and a somewhat different kind of management is required. The Pennsylvania Coal Co. and the Lackawanna are close neighbors, and experience gained in the service of one is useful in the service of the other.

It was 32 years ago, Apr. 1, 1884, that Mr. Inglis entered the coal business as office boy for the Hillside Coal and Iron Co. In 1890 he was made chief clerk. In 1901 he became superintendent. About six months later, Sept. 15, 1902, he was made superintendent of the Pennsylvania Coal Co. In 1909 he became general superintendent of the two companies, and in 1913 he was promoted to the position of general manager of both concerns. On Feb. 21 he assumed complete control of the coal department of the Delaware, Lackawanna & Western R.R., with its 25 collieries and 26,000 employees. The title of major was earned by service in the Pennsylvania National Guard and by active service during the Spanish-American War.

Though Major Inglis entered the business of coal production by way of the office, he has refused to confine himself to office work, but has made himself thoroughly familiar with every detail of mining and preparation. He knows the coal business from top to bottom and is one of the most energetic executives in the anthracite district. Those who know him feel sure that, in becoming general manager of the coal department of the Lackawanna, he will be a real manager, for he will take pains to know every detail of the business and will accept the full responsibility with the title.

Mr. Inglis is president of the Bible class of one of the Scranton Presbyterian churches. He is also a member of the Engineers' Society of Northeastern Pennsylvania.

Coal-Mine Fatalities in 1915

By Albert H. Fay

The returns received by the Bureau of Mines, Department of the Interior, from the state mine inspectors show a gratifying decrease in the number of fatalities occurring in and about the coal mines in the United States during 1915. The number of fatalities reported during the year was 2,264, as compared with 2,454 in 1914 and 2,785 in 1913. The actual number killed during 1915 was the lowest for any year since 1906, when there were 2,138 fatalities reported. The fatality rate per 1,000 men employed for 1915 is 2.95, as compared with 3.22 in 1914 and 3.73 in 1913. The rate for 1915 is the lowest since 1898, during which year it was 2.71.

According to the United States Geological Survey, the production of coal for 1915 was 518,000,000 tons, so that a fatality rate based on the production of coal for the year represents one death for each 228,799 tons of coal produced, which is the largest production per fatality during the history of coal mining in the United States.

During 1915 there were 11 mine disasters (the same as in 1914) in which 5 or more men were killed. The number of men killed in such disasters in 1915 was 262, as compared with 316 in 1914, a net reduction of 54, or 17 per cent. The principal decreases in fatalities are in falls of roof, haulage, gas explosions and shaft accidents. The states showing the largest decrease in fatalities are Alabama, Colorado, Illinois, Kansas, Maryland, Oklahoma, West Virginia and Wyoming.

While it is not possible to attribute this reduction to any one of the many agencies striving to reduce mine accidents, each deserves credit for the part it has taken in the work. The saving of lives has been the result of closer and more careful inspection by the state inspectors; better enforcement of laws and regulations by the operators; the miner's realization of the dangers attending his daily work and his efforts to reduce accidents, due to the educational campaign conducted in his behalf; the more general use of safety lamps in doubtful mines; the use of permissible explosives; the humidifying of dusty mines; first-aid and rescue training, which saves lives that might otherwise be lost by reason of injuries received; the enactment of accident compensation laws, and the spirit of coöperation on the part of all concerned.

Editorials

Philanthropy and Profit

Some one ventured recently to say that the operator does nothing out of pure philanthropy. He should be drummed out of camp. The operators are doing many things out of the desire to help their men, and the miners show a similar disposition to aid their fellow employees and often to help the company employing them.

Such minds as scorn philanthropy as a motive of action are the cause of the lack of that virtue in others. Only by loudly proclaiming what philanthropy we meet can we increase its quantity and make more numerous the souls animated by it.

But philanthropy as a movement, not as a sentiment, can only come in any quantity from a full purse. Neither the operator in the bituminous region nor the miner anywhere can show philanthropy on a large scale. Little deeds which do not cost much money can be and are being done by both, and so far as they are able both miner and operator are showing their disposition toward generosity. Only in the anthracite region and in some nonunion sections is enough money being made to permit of a broad campaign of liberality. In one region in particular much of the work has been done by money secured by profits in another industry as the coal business did not furnish the required profit.

However, something which admirably simulates philanthropy springs instantly into existence just as soon as the maintenance of proper relations between miners and operators is made profitable. A new compensation law has made it a source of revenue to provide for the safety and comfort of the miners, and the operator is seizing the opportunity of making money by spending it in the employee's interest.

Similarly the day-wage bonus system would pay a premium to that operator who would enable his employees to earn the fattest envelope. Today he has little interest other than a philanthropic one in the tonnage of his miners. It is true that a large tonnage per man and fewer men has been hailed as the most profitable way of running a mine. Such concentration pays, it is true, if it costs nothing or very little, but it will bankrupt any company which expends much money in providing such earning facilities for its men. Some of the more philanthropic firms which tried such benevolent methods without having a low wage scale or an unlimited purse—such as the Pittsburgh-Buffalo Coal Co.—have gone to the wall.

Those of the operators who would like to see the dawn of a new day when there will be an award for coöperation between operators and miners will welcome the day-wage bonus system. They will see an opportunity to practice welfare work without loss and on true commercial principles.

They may be willing to hire a driver or two more so as to be sure of giving their miners a steady supply of cars. They may be able to put aside a locomotive which has been in the habit of getting out of order and which has been the cause of frequent delays on the road whereby men have been laid idle or make only half a full run. They may find it profitable to haul their men to their work when the distances are great so that these men will arrive earlier and do a bigger day's work. Many a question will solve itself when the interest of the operator as well as the desire of the miner is to see that each man is enabled to put out a large tonnage.

What does it matter now if cars go off the track in the rooms and delay the miner? At the end of the day he gets credit for less cars or tons and the loss falls on him. If, however, the turn is made even, every week the loss falls on all the miners. It doesn't fall on the operator in any event, so wood rails will serve as well as iron, especially if the cars are small and the use of wood is in any way practicable.

Why put in shortwall machines which cut more coal? The price paid for breast-machine cutting is no more than where shortwall machines are provided. The last man to be considered is the miner.

But we try to arrange that the driver will find his cars waiting for him at the switch. To this end we scold the rock dumper if he is slow in unloading the rock when it comes to him; we berate the dumper and the trimmer if there is a delay at the tipple; we harry the motorman at the siding if he has been slow in making his run or has hitched on a few cars less than a full trip; but if the tracklayer doesn't get the miner's switch in for a whole day who cares? Only the miner.

If there is a shortage of props and a man goes home, who suffers as much as the miner? The operator is not financially concerned in the fortunes of his employees. There is nothing automatic in the relation between them, for what injures one is not detrimental to the other. So each goes about his separate purposes.

Many of the miners are scandalously indifferent as to their hours and methods of work. But the bulk of the inefficiency usually rests with the operator and will so rest till there is profit in coördination of effort between operator and miner. Given payment per day as well as per ton, the miner will come into his own rapidly. It is to be hoped that as a result of a new settlement a cash bonus of 25c. to 35c. per day will be provided for every miner who stays in the mine a full shift and that this premium will take the place of a percentage increase in the tonnage rate.

Another Success Number

Those subscribers to *Coal Age* who have read the paper more than a year undoubtedly remember the Success issue that was published the first week in April, 1915. The second Success Number will be printed April 1 of this year, and we are desirous of having all our friends cooperate with us to make this coming special issue more valuable and of greater interest than the Success Number issued a year ago.

It is intended that this second Success issue shall follow closely along the lines planned for the same number

last year. It will deal only with that which has absolutely made good, whether it be a man, a method or a machine. We want to tell how success was won here, there and everywhere. If a mine was a failure once upon a time and is now a successful operation, how was the change brought about? If some installation of machinery has bettered conditions, increased efficiency and lowered costs, tell us about it.

If you can't prepare a Success story for us yourself, then make a suggestion concerning something appropriate that you have in mind, and we'll follow the tip and endeavor to get the facts ourselves. If you have a good story of an actual instance, but don't care to sign the article, remember you don't have to. We must know who submits the facts, but it is not necessary for the writer to divulge his name if there is some reason for his not doing so. Every article we publish will be paid for at a liberal rate, so that the author will not only benefit his friends in the industry but will profit himself.

If you know of some man who started in the mines as a poor boy, handicapped at every turn by unfavorable circumstances, and who in spite of such lack of opportunity has made his way to a position of trust and respect, tell us the story, for it is just such cases that lend inspiration to others who are fighting against seemingly insurmountable obstacles. Viewed in the light of strict justice, many a foreman or superintendent is a greater personal success than the president of the company he works for.

In order that all who desire to do so may prepare something for this special number we have decided to limit each contributor to one article. Therefore select your subject today and start your article at once. We will add many pages to the usual size of our paper, so that there will be room for contributions from all our readers who wish to have a hand in the preparation of this special number. Nothing is closer to the hearts of all than the magic word "Success." Nothing is easier to talk about and nothing is more interesting to read about. We are going to count on everyone who has ever contributed to *Coal Age* to have an article in our Apr. 1 issue. We want a lot of readers who have never written for us to start their first article in our Success Number. All matter should be in our hands not later than Mar. 20. Get busy!

Drilling and Shooting Coal

Speaking of the great safety movement that has in recent years gained tremendous strength and swept away many dangerous practices and conditions in all industries, and in none more than in the mining of coal, there is no more potent factor—nothing more sure of producing results—than discussion. The various opinions and conclusions expressed are thus arrayed against each other, and the weak points and fallacies in each are exposed.

Among the many important subjects relating to coal mining recently discussed in *Coal Age,* there have been numerous references indirectly to the dangers incident to blasting coal and rock in mines. Incidentally reference has been made to certain dangerous practices common to miners when shooting the coal. Many good suggestions have been offered in this connection which if put into practice would greatly minimize the dangers of blasting. We have lately received numerous requests for a thorough discussion of this subject in all its branches and under all conditions common to coal mining.

This suggestion meets with the hearty approval of *Coal Age,* and we gladly invite all practical mining men to send us their suggestions, thoughts and experiences relating to the handling of explosives, from the time they leave the magazine on the surface until the shot is fired in the mine; the most practicable and the safest methods to be employed in blasting coal and rock, the conditions under which shotfirers should be employed, their authority and the manner in which they should be paid, the range of their work, as to whether they should not only fire but load the hole, and when this work should be done and the manner in which the shotfirer should proceed in its execution, the extent of territory of which he should have charge, his relation to other shotfirers employed in the same mine, and to state what precautionary measures should be adopted to insure the safety of shotfirers in the performance of their work.

It would be well to discuss also the conditions under which the employment of shotfirers would not be required, and in this connection also to discuss the responsibilities that rest on the individual miner in the preparation of his charge, its insertion in the hole and the tamping and firing of shots, the necessity of a certain time for firing, the order of firing, considering at the same time the escape of each man after lighting his shot, the necessity of warning men working in adjoining places, and especially the danger that has so often proved fatal of blowing through into another room or entry where the thickness of the protecting pillar has been underestimated.

Coal Age urges a most thorough discussion of this important subject.

Standardizing Mine Reports and Mining Practice

For some time past attention has been drawn to the need of the adoption of a uniform period for tabulating the statistical reports of mining and other accidents in the different states. This need has been greatly emphasized since the inauguration of the work of the Federal Bureau of Mines. It is apparent to the most prejudiced mind that the highest efficiency can be attained in any industry only by constantly studying the methods, conditions and practice in other fields and using the knowledge gained by such study and comparison to improve conditions at home. The Federal Bureau of Mines has been compiling statistical reports of mining in the several states, so as to enable a just comparison to be made that would greatly assist in determining the best types of mining practice. In order to facilitate this work the bureau has strongly urged that all state mining departments should adopt the calendar year ending Dec. 31 as the statistical year for terminating their reports.

It was for this purpose that the bureau called the conference of all mine inspectors in the United States, commissioners of industrial organizations and bureaus to meet at Washington to discuss the conditions existing in the several states and formulate if possible steps leading to the general adoption of a uniform statistical year. The conference was largely attended, and the discussion that took place will undoubtedly bear fruit in the near future and lead to good results.

Sociological Department

School Grounds in Coal Towns

By Karl B. Lohman*

SYNOPSIS—School grounds should be large and placed for the most part back of the school. Gardens for the teaching of horticulture to children are often made too large. Suggestions are made as to the shrubs and trees which should be planted.

Time was when school for the most part meant all work and little play. It was the generation of the schoolmaster, under whose stern régime everything was ruled with an iron hand. He was a symbol of hard, unrelenting work.

At present there is somewhat of a reversing of the old methods. Little work and much relaxation and efforts to make work much like play seem to be the aim of the new generation in its school management.

No wonder, therefore, that attention is being directed more and more to the facilities for play, and especially with reference to the grounds adjoining or surrounding the school. There is an augmented desire to make the grounds a pleasant place wherein to play, and at the same time there is an attempt to afford a more attractive setting to the school building, so as to make it a more inviting place wherein to work.

Within the mining communities, fortunately, there has been likewise evidence of this awakening. Now and then one is pleased to see, for example, a schoolyard nicely maintained, with perhaps a plot of grass, some bright flowers in the midst of it and an overarching tree or two casting a pleasing shade upon the grounds.

School Grounds Should Cover a Half-Acre

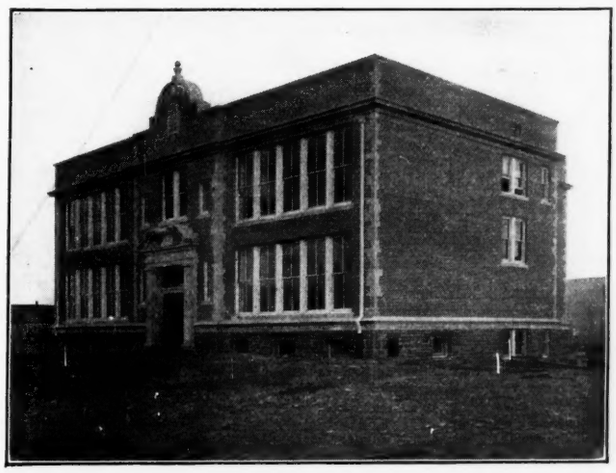
Such instances, indeed, convey a good impression wherever they are seen. But too often in the coal regions one meets with conditions that are not so favorable as these. Far too frequently the school grounds are inadequate both as to size and facilities or are of decidedly barren appearance. In such places the children are likely to think the dangerous public road is a better place for romping during recess and before and after school than are the sordid school grounds which are provided for them.

But in what way do better school surroundings affect especially the problems of mining communities? First, the advantage of improved environment is particularly vital to the children of miners, whose home surroundings generally are not any too favorable. Second, mining towns are disposed to be slightly more squalid and backward in physical improvement than other communities; and an improved school ground will mean one more touch of verdure, of pleasantness, to the aspect of the community, one more step toward the rejuvenation and reclamation of that community. Let us consider some of the contributory elements of an effective school ground.

The school ground must first of all be of adequate size. Anyone who for five minutes has watched children on the rampage will catch readily the importance of this necessity. We shall discover on inquiry that most grounds are entirely too small for their purpose. They should cover at least a half-acre, if not more.

The buildings should be placed so as not to interfere with the use of the grounds. In general, a school building should be located pretty well forward on the lot, because that allows of a larger area in the back of the school, a portion of the ground, which is usually more desirable for play purposes.

If there are to be any outbuildings, they should be on the back line of the lot. In quite a few mining communities the absence of a water system compels the placement of sanitaries out of doors instead of inside the buildings. Under such circumstances these should be separated from each other by the entire length of the lot, by a fence with trailing vines or by a thick planting of shrubbery.



A GOOD SCHOOL NEEDING LANDSCAPE TREATMENT

Wherever fences are necessary, hedges often may satisfy the requirements, and if not, a strong wire fence probably will do so if "boy high, boy strong and boy tight."

Facilities for Play Should Be Provided

A further requisite and an indispensable one to the working out of a good school ground is proper provision for play. First of all, there should be if possible a boys' baseball diamond, with 60 ft. between bases. Also there should be some apparatus such as swings, slides and seesaws, together with adequate open ground for the usual games. Clearly the question of playgrounds is so large a one in itself that it should be taken up quite apart from that of school grounds.

By teaching upon the school grounds the simpler elements of horticulture and their application, it is often quite possible within a mining town to develop an interest in gardening among at least a few of the children.

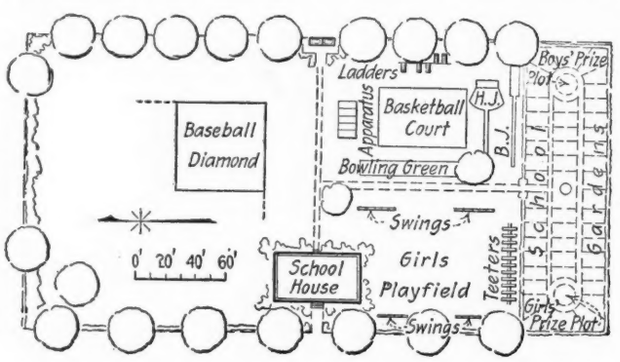
*Landscape architect, Wilkes-Barre, Penn.

An area so set apart should be rather small, perhaps not more than one-eighth of an acre in extent. It may be made to form an attractive feature in the general effect, yet if untended and too large, a wilderness of weeds is likely to replace the garden on which hopes had been set and the end would be little better than if there had been no such provision at all.

Planting Scheme Should Be Planned Last

Ill-ordered tree planting, often under the influence and guidance of a presuming nurseryman, will not by any means answer the needs of a school ground. Before any planting whatever is attempted the arrangement of the area must be completed. Paths, walks, open places for games, special compartments for school gardens—all of these things must be properly located with reference to convenience, simplicity and orderliness. Then and then only should follow the question of planting.

Shrubs may be introduced along the foundations of the school to serve as a transition between the building and the ground. They will continue to perform that mission even through the winter, unlike annuals and perennials that die down in the fall and which for that reason are



PLAN FOR SCHOOL PLAYGROUND AND GARDEN
H. J. represents the high jump and B. J. the broad jump

not practicable for this purpose. The following shrubs are particularly hardy and useful in this direction: Van Houtte's spirea, Thunberg's barberry, Lemoine's deutzia, globe flower, Regel's privet, white kerria, indian currant, snowberry and yellow root.

This list, supplemented by such larger varieties as the golden bell, common barberry, carnelian cherry, Siberian red ozier, Japanese and common privet, bush honeysuckle, mock orange, the viburnums and lilacs, may be exceedingly valuable for planting along the property bounds and for screening off any unsightly views.

Where there are out-of-door toilets, vines may assist materially in helping to conceal them. The Virginia creeper of our woods, which colors so beautifully in the fall, is preëminently of value. But there are also the honeysuckles, which are excellent if allowed to bunch and trail at their own sweet will, or clematis paniculata and virginiana, which climb fairly well after receiving some encouragement and possess attractive fruit as well as flowers.

Also, a tree or two may be placed on the southern or southwest side of the building, so as to afford shade and an additional attractiveness of setting and enframement. The choice of these should be limited so as not to exclude such trees as the blue spruce and the catalpa bungeii. Rather should we choose such trees as the maples—sugar, red, Norway (but not the silver maple); the oaks—scarlet, white, red and pin; the tulip tree, the buttonwood, the beech, the ash and the basswood.

Of course, the material for planting may be bought from the nurseries, but it may often be far more cheaply gathered from the mountainsides. In the latter case the material may be put in final place at once, or on the other hand it may be grown in nursery rows on the school grounds and the time of planting postponed until an appropriate and convenient time, for example Arbor Day.

The planting of carpet beds, so called, in the schoolyard, with such flowers as geranium and coleus, under usual circumstances may be permissible. The only objections seem to lie in the fact that such a manner of planting means more care and hence more expense, and also offers in the winter time only a stretch of bare ground. Shrubbery inclosing a well-kept lawn is often more desirable, or if flowers are to be introduced, they should rather be chosen from the perennial varieties that live on from year to year instead of dying down and requiring renewal each season.

Improved school grounds in the coal regions will serve as an example to the children. The latter in turn will assist in carrying back to their homes the contagion of improvement. So that schools and their surroundings may become important factors, not only in the lives of the children, but in the lives of the people generally. In fact, the improved school ground will mean a big step toward the ultimate beautification of a given community. If we will bend our efforts, therefore, toward a more adequate school ground, we shall at last succeed in making it not merely a beauty spot in the community, but also shall do much toward making the whole town a beauty spot in the hearts of the people.

Keystone Mining Institute

Much of the work for safety is being done by institutes which do not have their speeches printed or their meetings noticed in the public press. Nevertheless their influence is strong in the promotion of safety.

One of the leading institutes is composed of the employees of the Keystone Coal and Coke Co. They held their seventh annual banquet at the New Fisher House, Greensburg, on Saturday, Feb. 5, and in his opening words William Nesbit, the president, was able to record the good results obtained by the members of the institute in their efforts to reduce accidents. In 1915 there were only five fatal accidents, yet the tonnage was 3,700,000 tons, which is 740,000 tons per fatal accident. In 1914 there were 14 fatal accidents, although the output was 200,000 tons less.

William Nesbit was followed by Col. Richard Coulter, president of the Keystone Coal and Coke Co., and songs were sung by Giovanni Chiappetta and John Bonham. The latter can not only sing effectively, but is an adept at Yiddish monologue, and with Nettie Corneke, Giovanni Chiappetta and Bella Goddard, the accompanist, he introduced some interesting Italian street singing. The music was furnished by the band of the Tenth Regiment.

The institute consists of the officials of the company—the mine superintendents, foremen, inspectors, firebosses and assistant foremen.

Discussion by Readers

Increasing Price of Coal

Letter No. 1—In all the discussion of the pending issues between the miners and their employers the former seem to have forgotten their brethren who buy the coal. In this connection my thoughts have been turned to the city dweller's attitude toward the miners' increase, by the reading of the operators' advertisement that appeared, in *Coal Age,* Feb. 12, p. 21, warning the public of the situation that confronts them in the present crisis, owing to the inevitable increase that will follow in the price of coal to domestic users.

It is a pertinent fact and one not to be overlooked that every increase in the price of coal works toward making more idle days for the mines. To explain: The average wage earner in the city would be glad to get our mining "patch" ash piles to burn in his furnace. We who live near the mines have but a faint idea of how the outside buyer of coal seeks to use every available ounce of the precious material, which we sell him at a rate he considers above his means.

Gas now takes and will continue to take the place of anthracite for cooking purposes in many households, and where gas is not to be had the oil stove is keeping the coal dealer from the door. This condition means a curtailment in the consumption of domestic coal on which the collieries' profitable orders chiefly depend. Therefore it is a problem whether it would not be better for the miner to have reasonably steady employment at a fair wage than broken time at a higher rate than the industry can stand.

No effort is made by the companies to sell their product in the summer months, except by making the reductions in price that prevail at that time. Hence, under the present conditions, the coal trade is best when coal is most expensive. The operating cost of a colliery, as is well known, is considerably greater for outside work in the winter months. Perhaps some genius will evolve a plan to induce the buying public to get their coal at a time when stripping operations and other outside mining work can be performed at a profit and when the problem of producing a large tonnage is not nearly so difficult as in the freezing months of the year.

Meaning of the Miners' Demands

The rank and file of the miners do not seem to grasp, even faintly, the meaning of their demands. The outside workers and the inside company men are the ones mostly interested in the wage parley. This class of labor has grown restive, and it is up to the heads of the union forces to meet this condition. The shift hands feel that the miners get the cream of every wage increase and that they themselves are ignored in the settlement of the dispute.

However, when trouble is brewing the miner at once goes to the dayworker for his support. The 8-hour day does not interest the contract miner, as he seldom works that many hours a day now. He is not bound by stated hours and can go to the surface any time when he feels he has made a day's pay, be it early or late. That the dayworker needs an increase in pay and needs it much almost any mine official will admit. This class of labor is becoming scarce around the mines and will be more so if medical examinations are made any more strict than they are at present. At a number of mines men whose health will not permit them to work underground have found work jobbing around the breakers.

Under the compensation laws some of the companies are excluding this class of men from the mine, many being refused employment in any capacity. The wages are so low in outside occupations that unskilled "huskies" go into the mines as soon as opportunity offers. This has embarrassed the outside foreman, who is dependent on whatever workers he can secure and hold. The new wage scale, whatever it may be, will mean a readjustment of working conditions at the mines.

Another factor in the coming adjustment is the unusual cost of operating material. Steel products for mining are going up in price every day. Dynamite and blasting supplies are doubled in cost to the companies, while other supplies are on the upward trend. The compensation insurance premiums will doubtless find their way into the coal price, and to sum up, as the lawyers say, we miners will get a raise, but it will be gobbled up by Mr. Highcost of Living as soon as it arrives.

J. Kenvin.

Maryd, Penn.

Recovery of Pillar Coal

Letter No. 2—I read with interest the letter of J. B., *Coal Age,* Jan. 29, p. 218, relating to the recovery of pillar coal, and would like to give my own experience in pillar workings, having always been very successful in extracting the coal from pillars and stumps.

However, it is a fact that every mine does not present the same conditions that will make it possible to recover a like percentage of coal in drawing back the pillars. Some mines have a hard roof and soft bottom, while others have a weak, shaly roof and solid bottom. For this reason one must study carefully the conditions of roof and floor and use those methods that are best adapted to the case in hand.

I will describe briefly the plan followed in a mine where I have been employed for a long time, which is located in the Ligonier Valley. This mine is well managed, and both the superintendent and mine foreman are men of experience in the mining of coal, but they are always willing to listen to good suggestions as to the best methods to adopt in drawing back the pillars. In this seam there is a foot of coal overlaid with a thin layer of bony, then a drawslate, and a shale that measures 6 ft. in thickness. Blasting is not permitted in the mine, owing to the bad roof.

The rooms are driven on 35-ft. centers, and I have found that when they are driven up narrow, leaving from 13 to 15 ft. of pillars between them, more coal can be

taken out than when the rooms are driven wider than this. The reason is that when they are driven wide a longer time is required to finish the rooms, and the weight settles heavily on the timbers, which require to be replaced before the pillars can be drawn back. Also, when the room is driven too wide, the roof falls in such a way as to impede the work of drawing back the pillars. Again, if the pillars are left more than 15 ft. wide, the work on the pillars becomes very dangerous owing to heavy roof falls. In that case not over 50 per cent. of pillar coal can be recovered. The greatest percentage of coal is obtained when the rooms are driven not too wide and there is just strength enough in the pillar to check the heavy falls of roof.

When drawing back the pillars, we have found that the best plan is to drive the crosscut through the pillar 20 ft. back from the loose end and work out this stump toward the fall. By this means it is generally possible to take out the entire stump and fewer props are required to hold the roof in a solid and sound condition. As quickly as the stump is removed all timbers are withdrawn in that section. Another crosscut is then driven 20 ft. back and work commenced on the next stump.

Working Under a Solid Roof

Of course where the roof is solid the best plan is to drive rooms on 40-ft. centers, allowing 22 ft. for the width of the room and 18 ft. for the pillars. Then when drawing back the pillars, if the mine foreman will keep the work in line and not permit the men working on one pillar to advance too quickly, there is every possibility that 95 per cent. of the coal can be recovered.

I have noticed in our own mine that it sometimes happens that a miner working out a stump will have only three or four cars of coal remaining at quitting time. It would require but a short time to take out this coal and complete the work on that stump. However, he is not permitted to do this, and in the morning he finds his free coal buried in a heavy fall and lost.

Listie, Penn. John Majer.

Thrift Among Miners

Letter No. 1—In an editorial entitled "Mechanism of Thrift," *Coal Age,* Oct. 23, p. 679, the writer takes the view that the reason for so much individual capital going to waste in mining villages is chiefly owing to the need of banking facilities in such towns. This view may be correct in some instances, but as a general proposition I believe it is not the main reason for such waste. To my knowledge there are whole sections of country in which almost every mining village of any size has one or more banks, where miners would be welcome and where they can safely deposit their earnings. I am sorry to say, however, that these institutions are not patronized by miners as they deserve.

It occurs to me that it is not so much a question of an insufficiency of banks as of getting miners to make use of the banks already established, and adopting economical methods of living and saving instead of squandering their earnings. The fact that there is no bank in the small mining village where he lives is no excuse for the miner not laying his earnings by and depositing them, from time to time, in some bank in an adjoining town. Today much bank depositing is done through the mails, and all mining villages are provided with post offices and mail routes.

Many miners have but little conception of the true meaning of thrift. To them "thrift" means the making of big money and spending it as fast as it is made, with no thought of accumulating a dollar. The dictionary describes thrift as meaning gain or increase in worldly goods, etc. I understand the expression "mechanism of thrift" to mean the art of managing one's business affairs to advantage, which can only come as the result of close study and careful observation. Many miners understand how to manage their work to make good pay, but have little idea of how to spend the money that has cost so many hours of hard labor. In this respect they are complete failures.

Improvidence of Miners

The miner who has no desire to accumulate his means for future needs generally regards as lucky the man who has practiced economy and as a result has a home and a bank account. Being a stranger to economy and frugality of living, the former does not realize that the latter's success is the result of practicing good sense and judgment. In order to spend his earnings as quickly as made, many a miner will lose one or two days a week, thereby not only reducing his income but to that extent lessening the output of the mine. A miner is frequently heard to remark that it is better to spend one's money foolishly than to put it in a bank, because "all banks are unsafe."

The editorial further states, "Thrift is discouraged and the workman is blamed for faults of improvidence with which he is not rightly chargeable." I would ask, In a mining town or camp where 200 or 300 men are employed and there are two good banks, who but the miner himself is to blame when he spends his money as fast as it is earned? Examples of such improvidence are not wanting in almost every mining town. Until the miner learns habits of economy and saving, increasing the number of banks in these towns will have little effect.

Labor as an Investment

The closing paragraph of the editorial states, "Only when the workingman invests his money will he defend the rights of investors; only then will he realize that the profits of investment are not outrageously high." Permit me to say that while this statement is true such an end will be attained only through education. The miner must first be educated to save his money instead of spending it foolishly. When times are prosperous, all workingmen, but especially miners, form extravagant habits, to change which for the practice of economy at other times will require a strong effort and much determination.

Could miners be brought to see that their labor is their capital and the wages earned are the dividends that they receive on the investment of each day's toil, the situation would become more hopeful. When the miner comes to value his wages as the business man values the dividends received on his investments, and learns to deposit his earnings as the business man devotes his surplus dividends to increasing his invested capital, then and not before will this waste referred to in the editorial cease.

In my experience I have known miners who made good wages in the mine, but did not save a dollar, and after quitting the mine and engaging in other business, they accumulated quite a sum. Two of these men, I now recall, left the mine to engage in the grocery business. Beginning on a small scale at first, the business grew steadily, and in a few years they had accumulated several thousand dollars. The earnings of the business were small at first, but instead of spending this surplus as they did while in the mine, they put it back into the business. It is clear that if they had practiced the same businesslike policy and invested their surplus earnings when working as miners or deposited them in the bank, in a few years they would have had a bank account that would have surprised them. JOHN ROSE.

Dayton, Tenn.

A Longwall Proposition

Letter No. 1—Having had some experience in the method of transporting coal by conveyor at the working face, I was greatly interested in the inquiry of Joseph Jelinek, *Coal Age,* Feb. 5, p. 266. Judging, as well as one may, from the facts given in relation to the nature and thickness of the strata overlying the coal, I believe that the conditions presented are ideal for securing a slow bending or settlement of the roof, which is so desirable and, I may say, essential in all longwall work.

The question of the number of roads or gateways leading to the face, or in other words the distance between these roads, must be determined by the rate or speed at which the face can be pushed forward. This again will depend upon the strength of the coal or the manner in which it breaks when mined, the method of mining or undercutting the coal employed and, last but not least, the means adopted for transporting the coal along the face to the cars and loading the same.

General Arrangement of a Conveyor Face

In all conveyor faces where I have been employed the bottom had to be lifted so that the cars would stand below the level of the conveyor, which transported the coal along the face and loaded it into the car, as was explained and illustrated some time since in *Coal Age,* Vol. 7, p. 136. When this method is employed the miner simply shovels the coal into the conveyor, which transports it to the head of the road and dumps it into the car waiting there to be loaded. There are different types of these conveyors, which consist generally of a traveling belt supported on rollers in such a manner as to form a trough suitable for holding the coal and conveying it along the face to the car. Such a belt conveyor is admirably adapted for handling the coal at the working face in thin seams where the cars cannot be taken owing to lack of headroom.

At one time I had charge of a section of working face where the conveyor used to transport the coal along the face to the roadhead was a sort of sled. This was about 14 ft. long, 3 ft. wide and 8 in. high on the face side and 14 in. on the gob side. This sled was drawn along the face by a main and tail rope. The coal was dumped by means of a sliding door, which was so arranged that it could be pulled forward and thus discharge the coal into the waiting car when the sled had reached the end of its journey. The arrangement was automatic, the door being set loose and free to move when the coal was to be discharged. The sled was hauled along the face by a small stationary compressed-air engine.

However, we experienced numerous troubles in the operation of this scheme, which were only overcome by patience and perserverance. In my opinion the transportation of coal at the face of thin seams requires some such method as this, or the installation of a belt conveyor to which I have referred. It is only by this means that it is possible to cut out the heavy expense incurred by the necessity of maintaining a large number of roads or gateways, which require constant brushing and timbering in order to keep them open and safe. Also, a decided benefit arises from having a less number of packwalls to build, and I should say from actual observation that this is a fact to be greatly appreciated in respect to economy in longwall work.

I notice that in the present instance the coal is hard, and it may be assumed that the average output will not much exceed 2 tons per man per day. Also, since the overburden is not great, I believe that a distance of about 6 yd. from the face would mark the point where the roof would settle to the floor and that this could be depended on to take place in from, say 3 to 6 days. On this basis it is possible to estimate the number of men that it would be necessary to employ on a given section or length of face in order to keep a sufficient space open for the operation of the conveyor. This will also show the number of tons that can be loaded each day in each section.

Linton, Ind. W. H. LUXTON.

Letter No. 2—Referring to the inquiry of Joseph Jelinek, *Coal Age,* Feb. 5, p. 266, in reference to working a thin seam of coal that varies from 20 to 27 in. in thickness, more data should have been given and it should have been stated whether the 2 ft. of soft sandy shale, which separates the coal seam proper from the 2 ft. of impure coal lying above it, is taken down and stowed in the gob, or whether this is left up with the impure coal that the inquiry states is not mined because it is not marketable.

Some ten years ago I worked a seam of coal of the same thickness as the one here mentioned. The seam had a slate roof 2 ft. in thickness. Not being able to obtain the desired output, I determined to take down this 2 ft. of roof slate and use it for building good packwalls. The result was that we almost doubled our output at a slight increase in the cost of operation. The packwalls were started on a thin layer of slack to form a bed for the slate, which was carried up to the roof and wedged tightly at the top. The building of these packwalls saved the expense of putting in cribs.

For the sake of experiment we worked the two sides of the mine differently, using a tail rope on one side and ponies on the other. On the side where a tail rope was used, we laid switches. These were "tongue switches," with a guard rail on the gob side.

Where the ponies were working, we laid a steel plate 5 ft. square at the head of the road, allowing the track to project about 6 in. onto the plate. The plate served to swing the cars as they were pushed out of the face to the head of the entry, ready to be hauled away by the ponies. Where tail ropes were employed, the headsheave was set as close as practicable to the face at the head of the road.

Another plan used was to swing a sheave by means of a hook that secured it to a prop set at the face halfway between two roads. A rope was passed through the sheave and attached to a wide board or sled provided with skates or runners underneath the board. Another rope attached to the other end of the sled was used to haul the latter to the head of the road, while it was drawn back by means of the rope passing over the sheave. In this case the roof slate was left up at the face, and the distance from the coal back to the gob was 30 ft., leaving 15 ft. on each side of the runway where the coal was hauled out on the sled.

A man and a boy worked in each place. Before using the rope and sled they could only load 1½ tons of coal a day, but after putting in the rope this was increased to 3 tons per day. The coal was loaded on this sled, and a man standing at the head of the road would pull the coal out from the face and load it into the car.

I might say that the distance between the roads was 120 yd., or 360 ft., thus giving 180 ft. of face on each side of the road. I found that the main thing was to keep the face moving forward regularly each day so that the weight would be thrown back on the gob. I would say that the hard topcoal mentioned in this inquiry as having no cleavage ought to make a very good roof. In my experience such a roof bends more readily, which is a good feature in longwall work. This coal can be taken down on the roads to secure the necessary headroom.

Mystic, Iowa. WILLIAM JAMES.

Double-Acting, Self-Closing Mine Trapdoor

Letter No. 1—Referring to the second inquiry of Ostel Bullock, *Coal Age,* Feb. 19, p. 349, in regard to a double-acting, self-closing trapdoor that can be opened by a mule, I would suggest a door swinging clear within the door frame or jamb, with a chain or wire rope, passing over a pulley on each side and weighted on the end, so arranged that the weights will rest on supports, with the chains or ropes taut, when the door is exactly in the closed position. The size of the weights will necessarily depend on the strength of the air current.

This arrangement, however, I would not recommend for use on a main-haulage road or where a large volume of air is passing. EDWARD H. COXE.

Knoxville, Tenn.

Accident in Electric Blasting

Letter No. 1—There appeared in *Coal Age,* Jan. 29, p. 221, an account of an accident that occurred in sinking a shaft. All the shots were fired by electricity, and it was suggested that some reader might explain what was the possible cause of one of the shots exploding just after the men had gone back down the shaft, supposing that all the shots had been fired.

I believe this was a case where the shot hung fire. Unfortunately, many people are under the impression that hangfires are impossible in electric blasting. The records of blasting, however, leave no doubt that this has frequently been the case. Much mystery and conjecture have surrounded the subject, owing no doubt to the mistaken idea that as soon as the wires are disconnected in electric firing it is safe to return at once to the place and start work again. In my opinion a workman should wait at least 10 minutes before returning to the place, because experience has shown that many fatal accidents have occurred owing to defective fuses.

The question will probably be asked, What happens, or rather what is likely to happen, in an interval of 10 minutes immediately following the apparent explosion of a series of holes electrically connected? As has already been explained in the reply to this inquiry, page 221, the cap may not have been of sufficient strength and its explosion may have only served to ignite the dynamite in the charge, and the combustion thus started would develop into an explosion at any moment.

Referring to electric firing with a hand battery, Dr. J. J. Rutledge, in Miner's Circular 7, p. 23, issued by the Bureau of Mines, states as follows: "If the blast fails to explode, wait 5 minutes, disconnect the lead wires from the battery and examine the battery carefully." Although not stated, there is evidently a strong reason for the admonition, "wait 5 minutes." The same circular, page 21, draws attention to the fact that several chances of accident, existing when shots are fired with squibs and fuse, are not present in electric firing. However, it is not stated that chances of accident are entirely eliminated in the latter case.

The investigation of electric fuses has shown that the current may be short-circuited within the fuse owing to imperfect manufacture, and this may cause a shot to fail of immediate explosion. Where the electric current has caused ignition of the explosive, without producing detonation, the combined gases liberated by the combustion may gain sufficient pressure to fire the charge a little later. A study of these conditions gives sufficient warning that chances of accident are not entirely eliminated in electric blasting.

In Lancashire, England, in 1912, a shotfirer lost his life when using an electric battery. He had connected his wires, and on pushing down the rack of the battery, the shot did not explode. He then removed the wires from the battery and returned to the place to examine the connections, with the result that the charge exploded, killing him instantly. To my mind this one instance is conclusive evidence that more care is needed.

Kimberly, Ala. WILLIAM CROOKS.

Letter No. 2—I read with interest the description by J. T. Reynolds, *Coal Age,* Jan. 29, p. 221, of an accident in electric firing when sinking a shaft. Such an accident may puzzle some, but in my opinion the fault was in the connections.

My experience in blasting with electricity has taught me that the greatest caution is needed, in connecting up the shots, to see that there is no chance for a short-circuit to occur that might lessen the strength of the current for any one of the shots so connected. I believe that many men are employed in this work that have not the experience or ability required, and as a result they or the workmen in their charge suffer or are killed by an accident that might have been avoided had the person had more experience and used greater caution. I believe that had the charges been properly connected, in the case mentioned by Mr. Reynolds, the accident would not have occurred, and I advise that only men of the required experience and ability should be employed.

Ludlow, Colo. JOE ANDREOTTI.

Inquiries of General Interest

Carbon-Monoxide Poisoning

Kindly advise through the columns of *Coal Age* the best means to employ to overcome the effects of breathing air containing carbon monoxide. First-aid instructions are to use the pulmotor and artificial respiration, while some doctors insist on intravenous injection of a sterilized salt solution of about 0.7 strength. My experience being limited, I would appreciate correct information.

Johnstown, Penn. MINING ENGINEER.

This question was submitted to Dr. August F. Knoefel, in charge of the first-aid department, Indiana Bituminous Coal Operators' Association, whose experience makes his reply of great value. Dr. Knoefel says:

"The dangers of carbon-monoxide poisoning and the treatment of the same should be understood by all who are connected with the mining of coal. An ignorance of the properties of this gas to lower the body heat is not unlikely responsible for a number of fatalities resulting from improper treatment.

"The poisoning usually takes place slowly, stealing upon its victim and benumbing or dulling his brain before he is aware of its presence. Frequently the patient will lose his ability to think and reason some time before unconsciousness occurs, while occasionally the poisonous effects take place very suddenly. In the great Courrières disaster many of the victims were found dead in their places with their picks still in their hands, while others were in the act of taking food.

"One of the most dangerous features of the gas is that its action is cumulative; that is to say, the blood stores up the gas. Although the percentage present in the atmosphere may be quite low, the blood absorbs it slowly but surely, until the person is overcome.

"More of the gas is stored up if the person labors than if he is at rest. Glaister states that alcoholics are more susceptible to this gas than total abstainers.

"Dr. Haldane has probably conducted more thorough scientific investigations of the properties of carbon monoxide than any other person. He found that when the blood has absorbed the gas to the extent of 20 per cent. the symptoms of poisoning appear only on exertion, while during rest the first decided symptoms make their appearance only when the blood contains 30 per cent. of the gas, and death occurs when the saturation reaches about 80 per cent.

"The more prominent symptoms of carbon-monoxide poisoning are a frequent desire to yawn, dizziness, a queer feeling, ringing in the ears, nausea, weakness and complete exhaustion. If the poisoning continues, a throbbing or fluttering of the heart occurs accompanied with headache. If at this time the sufferer comes out to fresh air the symptoms will pass off gradually, except that the headache may continue. On the other hand, if the symptoms are ignored and the person remains in the foul atmosphere, the effects become more marked, and a 'wobbly' feeling is experienced as if the legs were giving way. The intellect becomes clouded, and after staggering around, the victim will fall to the floor in a semiconscious or unconscious condition.

"In the treatment of carbon-monoxide poisoning, for convenience's sake it is well to make two classifications; namely, the first stage, that preceding unconsciousness, and the second, that in which the person has become unconscious. It is unanimously agreed by all parties who have investigated the subject scientifically that the enforced inhalation of oxygen should be coincident with the administration of artificial respiration. Dr. Haldane's experiments proved that in an atmosphere containing a large percentage of oxygen, although carbon monoxide would be absorbed, the gas would be robbed to a great extent of its poisonous effects.

"The oxygen should be administered by means of an inhaler placed over the nose and the mouth to prevent any dilution by the outside air. A number of quite efficient mechanical devices have been brought out for the purpose of producing artificial respiration, the more common type being the pulmotor, a new form of which has been recently placed on the market, while other forms are the lungmotor and the viavotor.

"Of the various methods of manual artificial respiration the Schaeffer, or prone method, is most effectual. Artificial respiration should be performed as soon as the person is brought to fresh air, as there may result an entire suspension of respiration, or at least it will be quite weak, with the result that the blood laden with poison will be unable to replace the carbon monoxide with oxygen.

"The treatment recommended for the first stage is fresh air, preferably oxygen; mild stimulation, such as aromatic spirits of ammonia; if breathing is shallow, artificial respiration should be practiced. Patient should be kept quiet, as exertion often brings on collapse.

"For the second stage, oxygen should be administered through an inhaler while artificial respiration is being performed. Stimulants are usually administered hypodermically. Many cases of serious collapse have been reported as resulting from exposing the person to cold air; it is therefore best to have the patient in a warm place, if any is close at hand. It is also well to massage the muscles of the limbs, thereby assisting in restoring circulation.

"These methods are usually followed by recovery. If they fail, many investigators recommend blood letting and the introduction of normal salt solution into the blood vessels, or subcutaneous saline infusion, which is the introduction of normal salt solution under the skin. The latter methods are not applicable for the first-aider and should be employed only by a doctor. Some authorities recommend blood transfusion, or the transfer of blood from a healthy person to a blood vessel of the patient. Some authorities object to blood letting because it removes heat from the body, which, however, is a small fraction. In the most severe types blood letting reduces the engorgement in the blood vessels."

Examination Questions

Mine Foremen's Examination, Utah, November, 1915

(Selected Questions)

Ques.—(a) What are permissible explosives? (b) What conditions make their use necessary in a mine? (c) What charge limit has been established by the United States Bureau of Mines for such explosives?

Ans.—(a) A permissible explosive, as defined in Miner's Circular 2, issued by the Federal Bureau of Mines, page 5, is one that is similar in all respects to the sample that passed certain tests made by the Bureau of Mines and when used in accordance with the conditions prescribed by that bureau. The tests and conditions of use are described in detail in the same circular.

(b) Permissible explosives should always be used in the mining of a dry, inflammable coal producing much fine dust, especially where gas is present even in small quantities. In other words, permissibles should be used wherever the flame produced by the explosion of black powder would be liable to ignite either gas or dust.

(c) A charge limit of 1½ lb. of permissible powder is prescribed by the Bureau of Mines on page 6 of Miner's Circular 2. This charge must be properly tamped.

Ques.—(a) What dangers arise in dusty mines from the blasting of coal and the lack of judgment in placing holes in blasting in mines? (b) Would you consider it safe to permit blasting to be done in mines generating explosive gases? (c) If so, what percentage of gas would you consider safe and under what restrictions would you permit blasting?

Ans.—(a) When blasting in dusty mines, there is always danger of using an excessive charge of powder and causing a windy or blownout shot, whereby much dust would be thrown into the air by the force of the blast and ignited by the flame of the explosion. The same danger is present when the miner has used poor judgment in placing the hole and has located the charge too far on the solid or has not freed the shot by properly mining the coal and cutting away any projecting top that would prevent the powder from doing its work.

(b) When proper precautions are used, blasting can be safely performed if the gas is not generated in dangerous quantity. These precautions are the use of a limited charge of permissible powder, which must be so placed that it is free to perform the work of blowing down the coal without expending its force on the mine air. The place where the shot is fired must be tested for gas immediately before lighting the shot. Squibs should be used in preference to fuse. No accumulations of dust should be permitted at the working face, which should be thoroughly sprinkled for a distance of, say, 20 yd. back from the place where the shot is to be fired.

(c) The allowable percentage of gas in the air current sweeping the face will depend on the nature of the coal, the size of the workings and other similar conditions affecting the safety of blasting. Where the coal is soft and inflammable and produces much dust, even 1 per cent. of gas present in the air would be dangerous. The precautions necessary to be taken where blasting is permitted under these conditions have been mentioned in the previous answer.

Ques.—An entry is advanced in coal for a distance of 252 ft. in one month; six men are employed who work the following number of shifts: Two men, 23 shifts each; two other men, 19 shifts each; and two others, 21 shifts each. To how many feet is each man entitled, and what does his yardage amount to at $2.50 per yard? The entry is driven 12 ft. wide and 6 ft. high; how many tons of coal are produced, and what would each man earn from the coal if paid at the rate of 40c. a short ton?

Ans.—The total number of shifts worked is $2(23 + 19 + 21) = 126$ shifts. The entry advances $252 \div 126 = 2$ ft. per shift. Therefore each man on the first shift is entitled to $2 \times 23 = 46$ ft., or 15⅓ yd., which, at $2.50 per yd., is $15\frac{1}{3} \times 2.50 = \$38.33$. In like manner, each man on the second shift is entitled to $2 \times 19 = 38$ ft., or 12⅔ yd., and receives $12\frac{2}{3} \times 2.50 = \$31.67$. Likewise, each man on the third shift has $2 \times 21 = 42$ ft., or 14 yd. and receives $14 \times 2.50 = \$35$.

Since the entry is 6x12 ft., its cross-section is $6 \times 12 = 72$ sq.ft. Assuming the mining rate is 40c. per ton of mine-run coal, it may be estimated that a cubic yard in the solid will produce 1 ton of mine-run coal. The total tonnage produced on this basis would then be $(252 \times 72) \div 27 = 672$ tons. The total amount paid for mining this coal is therefore $672 \times 0.40 = \$268.80$.

Each man working on the first shift will receive for his coal $^{46}/_{252}(268.80) = \$49.07$. Likewise, each man working on the second shift will receive for his coal $^{38}/_{252}(268.80) = \$40.53$. Also, each man working on the third shift would receive for his coal $^{42}/_{252}(268.80) = \$44.80$.

Ques.—Do changes of temperature, humidity and atmospheric pressure influence the readings of the anemometer? If so, explain how and why.

Ans.—The anemometer is designed and calibrated to indicate by its readings the number of lineal feet of air travel in the time for which this instrument is exposed to the current. When the time of exposure is 1 min., the reading of the instrument gives the velocity of the air in feet per minute. Neither temperature, humidity nor atmospheric pressure influence the readings of an anemometer, except as the temperature and humidity may affect the metal and change the calibration of the instrument. This effect, however, is not appreciable.

Ques.—An aircourse measures 8 ft. 9 in. at the roof and 10 ft. 6 in. at the floor and is 8 ft. high. The anemometer records 325 r.p.m. What is the quantity of air passing in the airway?

Ans.—The sectional area of this airway is $8 (8.75 + 10.5) \div 2 = 77$ sq.ft. The quantity of air passing is then $77 \times 325 = 25{,}025$ cu.ft. per min., assuming that the reading of the instrument is an average reading for the entire sectional area of the airway.

Coal and Coke News

Washington, D. C.

The Supreme Court in an opinion in the Baltic Mining Co. case handed down recently has carried farther the principles originally expressed in the income tax decision of some weeks ago. In the income tax case most of the contentions of the mining companies, and of individuals interested in mining, adverse to the income tax law were disallowed. There remained, however, certain other principles raised by the Baltic mining case in which John R. Stanton, a stockholder, sought to prevent the government from collecting "at the source" income taxes levied against gross profits.

The case involved the question whether the so-called profit from a mine notwithstanding it consisted primarily of wealth which effected a reduction in the physical value of the property, was really taxable. The Court holds that it is so taxable even though the profit implies a reduction of the physical value of the mine.

In another decision the Court upholds the surtax levied upon the higher incomes and continues the reasoning on that subject contained in the original income tax decision wherein the same line of argument as to the constitutionality of the higher rate of income taxation levied on the larger incomes was laid down.

These three decisions taken together sustain the applicability of the income tax to mining concerns in the most unqualified manner. It is not apparently likely that further contest as to these issues will arise in the near future.

Elaborate Hearings have been Completed

The Senate Committee on Public Lands has held, and has just published the text of elaborate hearings relating to the bill "to authorize exploration for and disposition of, coal, phosphate, oil, gas, potassium or sodium," which, as noted in this correspondence at the time, passed the House of Representatives on Jan. 15.

Among those who have appeared at the sessions and whose testimony is now published are J. A. Brown, of New York, C. C. Calhoun, of Washington, John M. Eshleman and J. N. Gillett, of California, E. J. Holmes, of Boston, H. M. Payne, of San Francisco and a number of others.

HARRISBURG, PENN.

The State Workmen's Conpensation Board on Feb. 26, settled upon a plan for determining what shall constitute a daily wage in compensation affairs after having had the matter under discussion for two months. The decision was reached after a consultation with Attorney General Brown. Numerous hearings have been given to both labor and capital on this question and the Board says that it is prepared to stand a test of its decision even in the courts.

The ruling on this question which will affect over 2,000,000 wage-earners in the state and which vitally concerns miners, railroaders and iron and steel workers is as follows:

Wages is the amount in money agreed upon in the contract of employment, written or oral, in force at the time of the accident, to be paid, to the employee for his services. In determining the money value of wages, do not add to the amount agreed upon in the contract, gratuities to the employee, such as tips or presents, wages paid for overtime, except in seasonal employment, or in employments dependent on the weather, board, lodging, rent, fuel or similar advantages from the employer, unless the money value of such advantage shall have been fixed as part of the wages by the parties at the time of the hiring. Do not deduct from the amount agreed upon in the contract the value of materials, supplies, tools and other things necessary for the performance of the employee's contract with his employer, furnished or paid for by the employer, unless the contract shall specifically provide that the employer shall furnish them and that the employee must procure them from the employer and from no one else, and that the employer shall deduct the value thereof from the employee's gross earnings.

If the contract of employment be in writing, such provision must be specifically included therein. If the contract is oral, the burden is upon the employer to show that the employee received express notice that the contract contained this provision.

Unless the value of materials, etc., is fixed in the contract of employment, the amount to be deducted under a contract, providing for such deduction shall be the fair market value of such materials, etc.

Sums due the employer for rent or supplies other than those necessary for the employee's use in the performance of his labor, even though supplied by the employer under contract which gives him the right to deduct such sums from the wages from time to time due to employee.

When the wages are fixed at the time of the accident by the week, the weekly wage so fixed shall be the basis for computing compensation.

When the wages are fixed on a monthly basis, ascertain the weekly wages by multiplying the monthly salary or wages by 12 and dividing by 52.

When the wages are fixed by the year, divide the yearly wage by 52.

To find "average daily wage" in continuous employment: The total earnings for six months preceding the accident or so much thereof as the employee has worked for the same employer is taken as a basis. Subtract from said "total earnings," all earnings for overtime, if any. Divide remainder thus obtained by number of "working days." "Working days" shall be construed to mean total number of days in the period of employment covered, according to the calender, less Sundays, legal holidays, half holidays, for each week, and days employee was prevented from working through no fault of his own. For "average weekly wage" multiply above result by 5½.

When the employment is continuous and substantially constant and regular the employee's earnings for the last full week preceding the accident may be taken as the average weekly earnings.

When compensation is paid semimonthly the compensation payments shall be ascertained by dividing the weekly compensation by 7 and multiplying by the number of calendar days in the period.

When wages are customarily paid semi-monthly, compensation may be paid every two weeks.

When at the termination of the disability, compensation is payable for a fraction of a week, the employee shall receive for each day of such fraction of a week, including Sundays and holidays, one-sixth of his weekly compensation.

An Interesting Case

A case of keen interest to mine workers and operators was that of Emily Johnson, settlement worker and literary woman, of West Pittston, against Richard Jones, former assistant mine foreman at the Stevens colliery of the Lehigh Valley Coal Co., in the Luzerne County Court on Feb. 24. Miss Johnson charged Mr. Jones with having received money from a miner so that the latter could retain his position.

Judge Strauss in dismissing the case, said that the charge in the indictment is not authorized by the Act of June 15, 1897, under which the indictment was drawn. That statute is entitled: "An act for the better protection of employees in and about the coal mines by preventing mine superintendents, mine foremen and asistants from receiving or soliciting any sum of money or other valuable consideration from men while in their employ and providing a penalty for violation of the same."

The Court held that the act was drawn in a slipshod manner. When it is considered that superintendents, mine foremen and assistant mine foremen are not the employers, but are themselves employees of the operator, whether a corporation or an individual, it becomes apparent at once that the probable purpose of the law was unaccomplished.

It was also contended by the court, that whether a mine foreman may or may not have received from the operator power to employ and discharge men it cannot be gainsaid that the mine foreman occupies a position whereby he may prevent the employment of men or their continuing in employment in the mines when he is unfavorable to them. There are many opportunities the court says, for placing the miners more or less favorably in the mines by giving them easy and lucrative or difficult and non-lucrative places. A casual reading of the statute gives one at once the impression of a beneficient purpose, but an attempt to apply it to the actual operations of mines shows that this criminal statute, which must be strictly construed, is futile and unworkable by reason of the fact that it has left out the universal conditions of employment of the miner by the foremen's superior and not by the mine foreman himself.

The Judge of the lower court has stated his view of the law. Possibly a higher court might declare that because the operator delegates the right of employing workmen to the superintendent or foreman, the provisions of the act can be applied. Anyway the purpose of the Legislature was to prohibit just such levying of tribute as was charged in this case, and if the wording of the act is fatal to the purpose the error can be corrected.

If the operators want to break up this practice it could be done better by careful private investigation than by depending on the initiative of the men, and outsiders. Such a system of graft should be rooted out, for if employees are hired and retained because of their yielding to the greed of those who employ them and not solely on the basis of competency, the operator is likely to suffer.

PENNSYLVANIA

Anthracite

Dickson City—Two miners, were killed recently at the No. 1 mine of the Pennsylvania Coal Co., when the floor of the chamber in which they were working squeezed up, crushing both men against the roof. It is declared by mining officials that the accident was the most peculiar that has occurred in the anthracite region in many years. Dynamite was used to extricate the bodies.

Lykens—About 1,000 miners at the Short Mountain Colliery of the Susquehanna Coal Co. went on strike Feb. 24, when the officials refused to reinstate William Stuppy, a loader boss. The United Mine Workers were in hopes that the men at Williamstown Colliery would go out in sympathy with the miners from Short Mountain, but were disappointed.

Pottsville—Although a dozen or more collieries in the Schuylkill region were idle on Feb. 26, officials declared that the embargo on traffic at Philadelphia would not be fully felt until Mar. 1. Orders have been issued by both the Pennsylvania and Reading Railways to yard masters which, it is expected, will have the effect of preventing the tying up of many cars in the coal regions, but if the Philadelphia embargo causes a material falling off in the number of cars going to the coal region, the closing down of a number of additional collieries cannot be avoided.

Mahanoy City—The Lehigh Valley Coal Co. suffered heavy loss recently by fire at the Park Place colliery. After fighting the underground blaze for many hours it was gotten under control and extinguished.

Wilkes-Barre—Notices posted on the doors of the various collieries of the Lehigh and Wilkes-Barre Coal Co. informed the employees on Feb. 25, that for the present 8 hr. will constitute a day's work. The new arrangement has nothing to do with the demands now being made by the miners, and is only the natural result of the car shortage. For some time the company has been experiencing difficulty in securing a sufficient number of cars to handle the coal and rather than shut down one or two collieries entirely the company preferred to take one hour from each of them. The breakers have been operating 9 hr. up until now, but the mines were only working about 60 per cent. of their normal capacity and some action had to be taken until shortage of men and cars has been reduced.

Hazleton—Twenty-eight men were killed in and about the mines of the 11th anthracite district during the last year, according to the annual report of the Inspector, D. J. Roderick. The total tonnage was 6,131,928 a decrease of about 100,000 tons over 1914. There was a fatal accident for every 218,997 tons of coal produced. Twenty-two fatal accidents occurred inside the mines and six outside, making 20 widows and 29 orphans. Not one fatal accident was due to a gas explosion. Thirteen of the men killed were caught under falls of coal, slate or roof.

Ashland—An extensive fire was recently discovered in the Potts colliery of the Philadelphia & Reading Coal and Iron Co. and extinguished after considerable damage had resulted.

Bituminous

Charleroi—Thirteen hundred miners employed at the Crescent mine of the Pittsburgh Coal Co., near California, are on strike following a controversy over affairs of an old and new local which reached a head when Hamilton Smith, said to have been previously outlawed, entered the mine to go to work. This strike is said to be aimed more or less at the district officials of the United Mine Workers.

Boswell—The Merchant Coal Co. has equipped all of its employees with storage battery electric lamps instead of safety lamps. Between 350 and 400 are now in use. This action was taken to safeguard against explosions caused by the open flame lamps.

WEST VIRGINIA

Beckley—It is reported that 13 out of a total of 17 leases averaging around 1,000 acres each have been let on the Stone Coal Branch of the Virginian R.R. by J. G. McCreery, of Hinton. This property carries the Beckley seam of coal.

Moundsville—The sale of the Mound City Coal Mine property, located in this city, which was scheduled to take place Feb. 25, was postponed for two weeks by attorneys Hubbard & Hubbard.

Bluefield—The Bluefield Chamber of Commerce has taken up the investigation of the proposition to secure the building of an electric interurban railway into the coal fields.

KENTUCKY

Frankfort—The Kentucky River Coal Corporation has announced a gift of 200 acres within the limits of its holdings in eastern Kentucky to the Kentucky State Board of Forestry for purposes of demonstrations of forest management, reforestation and regeneration. The gift is secured through the efforts of Johnson N. Camden, former United States Senator from Kentucky, who is a stockholder of the coal company and a member of the forestry board.

Whitesburg—Following a trip of President George W. Fleming, of New York, and Thomas S. Haymond, manager, through the operations at Boone's Fork, it is announced that on Mar. 1, day and night shifts will be set to work in the eleven mines at Beaver Creek. There will be an increase in employment and tonnage.

Henderson—With G. Powell and W. W. Fleming in charge, the U. S. mine rescue car is giving demonstrations in the western Kentucky coal field.

Barbourville—There is a shortage of labor among southeastern Kentucky mines. One mining corporation is advertising for 1,000 men and a number of plants are without sufficient force to handle the greatly increasing business.

Frankfort—The State Mine Inspector of Tennessee will be permitted by Kentucky authorities to inspect mines on the border of Kentucky and Tennessee with openings in Kentucky, which extend back into Tennessee. Assistant Attorney General Charles Morris has ruled that this is permissible. The matter was referred to him by C. J. Norwood, Kentucky Mining Inspector.

Empire—The Empire Coal and Land Co., has been incorporated with $200,000 capital stock at Nashville, Tenn., and will begin the operation of the empire mines here immediately. Sixty new houses have been built and $65,000 worth of machinery installed. The mines are to be under the management of J. B. Jacobs. The main offices of the company are to be at Nashville. The company has 1,200 acres of land here.

Louisville—The first bi-ennial convention of District 23, United Mine Workers of America, will be held in this city beginning Mar. 7. Demands which the miners will make upon the operators will be decided at this convention. Several hundred delegates representing 5,000 western Kentucky miners will be present.

OHIO

Columbus—The Piney Fork Coal Co. has started loading at its stripping operation in Jefferson county. The first output was five cars per day, which will gradually be increased.

INDIANA

Brazil—Indianapolis and Cleveland capitalists have invested in a tract of land in Lewis township, in the southern part of Clay county. A fine bed of coal will be mined after a strip of clay and shale is removed. The Indiana Southern will run a switch to the pit.

ILLINOIS

Belleville—Mrs. Clarise Abend has compromised her $7,500 claim against the North American Accident Insurance Co., on account of the death of her husband, Ernest Abend, and has accepted a settlement of half the amount. The suit she had brought against the company has been dismissed at her costs. Abend was killed in a fall down the shaft of the Abend Coal Co.'s mine. He was president of the company.

Hillsboro—The Shoal Creek Coal Co. has filed a bill of interpleader and injunction in the Circuit Court here in an effort to find out how and to whom it shall pay $6,308.19, judgment and interest, in a Cook County case in which Mrs. Marie Romani was given a verdict for $5,500 for the death of her husband in the company's mine at Pana. The company's embarrassment grows out of the fact that Thomas Mould, a Belleville lawyer, claims 50 per cent. of the judgment, and has an attorney's lien for that amount, the fact that Hyde & Gordon, Chicago attorneys, have notified the company that they have an interest of 25 per cent. of the judgment for services in the Appellate and Supreme Courts, and that Hyde, Westbrook & Watson, another Chicago firm, has a lien against 25 per cent. of the judgment for services in the higher courts. All the lawyers are threatening to sue on the appeal bond and levy on the company's property. As will be seen, the widow will have nothing if the lawyers have their way. The company is ready to pay the money and wants the court to say who is entitled to it. In the meantime it wants the lawyers restrained from suing on the appeal bond or levying on the company's property.

IOWA

Des Moines—The Iowa state board of control has not found sufficient coal on the farm at the Knoxville inebriate asylum to pay for sinking a shaft. Prospecting last fall revealed some coal pockets but no deposit of any extent. It has, however, discovered a coal deposit on the Flynn farm, a half mile northwest of Des Moines, averaging 4½ feet in thick

ness. A shaft will be sunk and convicts put to work. Penitentiary inmates have been unemployed since the abolition of contract labor by the board.

KANSAS

Pittsburg—The Chapman Coal Co., one of the oldest and largest mining organizations in this district, has disposed of its interests to the Sheridan Coal Co., which firm took charge the past week. The deal includes about 1,000 acres of land in the north district and gives the Sheridan company control of all of the coal lands located north of the J. R. Crowe Coal and Mining Co., with five modern mines working in some of the best producing land in the district.

Lansing—The Kansas penitentiary coal mine has just undergone a thorough inspection and is pronounced in first-class condition. Two mine inspectors looked over all the machinery, the headings and working rooms at the plant, and report everything O. K. Under the investigation made last August, the mine was reported in poor shape, but conditions at present are satisfactory, according to John Pellegrino, mine inspector, who directed the investigation.

ARKANSAS

Fort Smith—The Central Coal and Coke Co. has closed a deal to take over all the former holdings of the Bache-Denman Coal Co. in Arkansas, and negotiations have been begun by the company with the miners' union for a wage contract at the mine at Prairie Creek. These mines have not been operated since 1914, when they were damaged during strike riots.

OKLAHOMA

Henryetta—The Oklahoma Coal Co. within the last two weeks has shipped 250 cars of coal, averaging 35 tons to the car, to Kansas City dealers. The price is said to be around $2 a ton.

WASHINGTON

Spokane—For the first time in more than a year, practically every coal mine in the State of Washington is operating full time. Reports to the headquarters of the United Mine Workers of America show that the Northwestern Improvement Co., operating in the Roslyn and Cle Elm fields is considering seven days work a week instead of six as at present. A better demand for Washington coal is claimed as the the cause for this situation.

PERSONALS

W. R. McIntosh, of McAlester, Okla., has been reappointed as coal trustee for the Chickasaws and Choctaws for another term by Cato Sells, commissioner of Indian Affairs.

Patrick McGuire, has been appointed by the Luzerne, Penn., County Court as a member of the Miners' Examining Board, to fill the vacancy caused by the resignation of Edwin Doggett, of Freeland.

W. W. Fleming, of Evansville, Ind., has been appointed as foreman of the United States Mine Rescue Station at McAlester, Okla., succeeding J. W. Foster, transferred to Pittsburgh, Penn.

Walter Douglas, vice-president of the El Paso & Southwestern R.R. and general manager for the Phelps-Dodge corporation, made a brief inspection visit to the Dawson camp recently.

Geo. W. Hadesey, division superintendent of the Philadelphia & Reading Coal and Iron Co., was recently operated upon for abdominal trouble at the Pottsville Hospital. His condition is reported as favorable.

J. C. McDermott, for several years foreman of the mines of the Jamison Coal Co., at Forbes Road, Westmoreland County, Penn., was recently appointed inspector of all coal mines of the company in Pennsylvania.

James W. Eaton, for the past 17 years mine foreman for the H. C. Frick Coke Co., has resigned his position to accept a position with the W. J. Rainey Coal and Coke Co., at one of the large mines near Uniontown, Penn.

Ira F. Davis, formerly general manager of the Cabin Creek Consolidated Coal Co., who has been living in Birmingham, Ala., for the past year or so, has accepted the position of general manager for the Consolidated Coal Co., of McRoberts, Ky. This is one of the largest coal operations in the state.

Charles S. Keith, president and general manager of the Central Coal and Coke Co., of Kansas City, was reëlected president of the Southern Pine Association at its annual convention held in New Orleans the last week in February.

W. W. Risdon, of Albuquerque, has been appointed state mine inspector by Governor McDonald to succeed Rees Bendow, of Gallup, resigned. Mr. Risdon has been connected with the coal-mining industry in Colorado and New Mexico for some 25 years.

Sales Agent D. W. McClennan, of the Allegheny Co., of Cleveland, has resigned on account of ill health. After being in hospital some time he will now return to his old home at Aylmer, Ont., to recuperate. He formerly represented the Pittsburgh Coal Co. in Canada.

M. L. Coulter has succeeded H. M. Kanarr as chief engineer of the Punxsutawney Division of the Rochester & Pittsburgh Coal and Iron Co. with headquarters at Punxsutawney, Penn. Mr. Kanarr quits the employ of the above named company and has not announced any plans for the future.

Hiram Smith, for many years, general inside superintendent of the Dorrance Colliery of the Lehigh Valley Coal Co., has been appointed mine inspector for the Associated Insurance Companies of Pittsburgh. His work will be to inspect coal mines which are insured under the compensation act with the above company.

OBITUARY

John Sudric, for many years a miner in the Hazleton district, died recently at his home at Crystal Ridge. At the time of his death Mr. Sudric was 107 years of age.

William A. Dinker, 66 years old, died suddenly on Feb. 21, at his home in the East End, Pittsburgh, Penn. He was secretary of the Eureka Coal Co. until it was taken over by the Pittsburgh Coal Co., after which he became purchasing agent of that concern. He was a director of the National Fireproofing Co. and of the Bethany Beech Land Co. of N. J.

INDUSTRIAL NEWS

Garrett, Penn.—W. A. Merrill, coal operator, is arranging to open a modern mine on the 1,300-acre tract along Wilson Creek. The new plant will employ a large number of men.

Philadelphia, Penn.—A special meeting of the stockholders of the Rockhill Iron and Coal Co. has been called for Apr. 13 to vote on the proposed increase of indebtedness from $970,000 to $1,470,000.

McAlester, Okla.—The W. G. Mullen Coal Co. of North McAlester, was recently incorporated by W. G. Mullen, D. E. Clark, A. W. Breckenridge, all of North McAlester. The capital stock is $10,000.

Philadelphia, Penn.—At the annual meeting of the Susquehanna Coal Co. the statement of operations for the past year was approved and all the retiring directors reëlected for the ensuing year.

Muskogee, Okla.—The American Smokeless Coal Co. was recently incorporated with a capital stock of $100,000. The incorporators are R. T. Price and E. R. Jones, of Muskogee; C. S. Reagan, of Fort Smith, Ark.

Cincinnati, Ohio—The Wheeling Valley Coal Mining Co., of Providence, was recently chartered for $20,000. The incorporators are Frank Costenzo, Louis Costenzo, Oliver Monico, Antonio Costenzo, and Julia Monico.

Sebree, Ky.—It is said that Sebree is to have a new coal mine. J. B. Brown, president of the Sebree Mining Co., and C. M. Milton expect to secure an option on 785 acres of land west of the city, upon which a shaft will be sunk.

Roslyn, Wash.—Fire recently destroyed the general store of the Northwestern Improvement Co. here with a total loss. The stock invoiced between $70,000 and $100,000. The store was owned by the large coal mining syndicate of Roslyn and Cle Elm.

Peoria, Ill.—The annual convention of the United Mine Workers of Illinois scheduled to convene here Mar. 1, has been indefinitely postponed. Lack of a settlement of demands before the Joint Scale Committee at Mobile, Ala., is given as the cause.

Washington, D. C.—The Interstate Commerce Commission has given carriers until Mar. 15, to file statements showing divisions of joint rates on railway fuel coal. It was stated certain carriers were making abnormal and special divisions of certain joint rates of fuel coal.

Clarksville, Tenn.—A reduction in coal freight rates from the western Kentucky mines to Clarksville of ten cents a ton has been announced by the Louisville & Nashville Railroad Co. For more than a year the Clarksville Chamber of Commerce has been seeking to have the $1 rate reduced to 70 cents.

Moundsville, W. Va.—The Fort Pitt mine will soon begin to load coal, and indications are that the former large output will be considerably exceeded. The Fort Pitt mine, before the eastern Ohio Coal Strike, had a payroll of about 300 men, while between 100 and 200 men will be employed shortly if conditions are maintained.

Barbourville, Ky.—Contracts have been let for laying steel on the Barbourville-Manchester R.R., and the construction of tracks will start at once. Considerable grading on the entire length of the road of 24 mi. has been done, as well as bridge building, and it is stated that trains will be running as far as Girdler by August.

Tono, Wash.—Tono, which is a company town of the Washington Union Coal Co., is enjoying its streak of prosperity. One indication of this fact is, that while the residents are practically all miners, there are 19 automobiles owned by this class, and eight more have been ordered. This does not include any officers of the company.

Washington, D. C.—The Interstate Commerce Commission recently postponed from Mar. 1, to June 1, the effective date of its order of Nov. 8, relating to rates on bituminous coal from mines in Illinois and Kentucky to Mississippi Valley territory, except as to points on the Illinois Central north of Memphis, Tenn., and Crenada, Miss.

Buffalo, N. Y.—The steel steamer "Jesse Spalding," wintering here, was sold recently to the Commercial Coal Co. of New York for $100,000 and will go to tidewater as soon as lake navigation opens. She carries 2,000 tons and her builder, for whom she was named had an elegant set of cabins constructed on board for his own use.

Buffalo, N. Y.—Members of the C. Reiss Coal Co., of Sheboygan, Wis., visited Buffalo recently and added to their already large fleet of coal carrying vessels by the purchase of the Peavey fleet of five steamers, for which $1,000,000 was paid. The company has coal docks in half a dozen upper-lake ports and buys its anthracite principally of Williams & Peters.

Blackey, Ky.—It is announced here that the Rockhouse Creek Branch of the Louisville & Nashville is to be built from Blackey into the headwaters of Rockhouse Creek a rich coal territory, entirely undeveloped, this year. The survey was made and rights-of-way secured last year. A number of big coal operations will result by the building of this important branch.

Arista, W. Va.—The S. J. Patterson Pocahontas Co., located in the heart of the Pocahontas coal fields of West Virginia, has closed a contract with the Link-Belt Co. for a modern 4-track tipple for its new operation. The tipple will be equipped with shaking screens, picking tables and loading booms to properly pick and screen the coal and load into cars without breakage.

Jackson, Ky.—It is reported here that the Pearsite company, which is building a plant for the manufacture of dyes from cannel coal products at Clay City, is also considering plans for another plant, even nearer the cannel coal fields in Breathitt, Wolfe, Magoffin, Perry, Leslie, Knott and Lee counties. Clay City is on the L. & N. R.R., 100 miles distant from the nearest coal field.

Pittsburgh, Penn.—The H. Koppers Co. recently closed a contract to erect a 45-oven plant for the Camden Coke Co., at Camden, N. J., to cost approximately $500,000. A benzol plant to cost several hundred thousand dollars will also be erected. A contract is also closed to erect a 110-oven by-product coke and benzol plant for the Seaboard Byproduct Co., at Jersey City, N. J.

Harrisburg, Penn.—The Pennsylvania Railroad Co. has notified the Public Service Commission that it has rescinded its rule discontinuing car service for loading coal at sidings in the bituminous region. It reserves the right to reinforce it. Complaint was made some time ago that the company's order had worked a hardship on coal producers not having sidings and tipples at their mines.

Charleston, W. Va.—A charter was recently issued to the Sewell-Pocahontas Coal Co. with headquarters and chief works at Roderfield in McDowell County. The capital stock of this firm is $50,000, of which amount $600 has been subscribed and $500 paid in. The incorporators are R. W. Liddle, W. D. Liddle, W. J. Hawkins, of Roderfield, and J. L. Vaughn, R. W. Liddle and W. D. Neikirk, of Shawsville, Va.

Philadelphia, Penn.—The Pennsylvania R.R. reports an increase of 1,574,114 tons in the fuel shipments on the Pennsylvania lines east of Pittsburgh for the month of January, with a total of 6,643,416 tons. Of this total amount 4,314,806 tons of bituminous, 1,736,878 anthracite, and coke 1,191,732. The greatest increase was in bituminous—815,870 tons, with 507,599 tons increase in coke and 250,645 anthracite.

Louisville, Ky.—Twelve thousand bushels of coal in the largest barge operating on the Ohio river was swept over the government dam and lost in the falls of the Ohio here recently. Efforts of Capt. G. W. Shaw, of the Monongahela River Coal and Coke Co. to save it with a tug boat were unavailing. It was the property of the C. F. Snyder Coal Co. and is said to have been cut loose. Arrests have been made.

Fairmont, W. Va.—The work on the Helen's Run Ry. branch of the Western Maryland Railroad Co. is nearing completion, and the contractors promise to have the road finished on schedule time. This branch is 6 mi. in length, and will extend from Chiefton on the Monongahela division of the Baltimore & Ohio to the new Helen's Run coal field of the Consolidation Coal Co. The Helen's Run mine will be the largest operating in this field.

Pittsburgh, Penn.—Announcement was recently made by the Pittsburgh Coal Co., of New Jersey, that if the stockholders consent it will pay the back dividends on its $27,071,000 outstanding preferred stock, amounting to $44.58 per share, by stock in the recently formed Pittsburgh Coal Co., of Pennsylvania. Under this plan each preferred stockholder of the New Jersey corporation would receive 6% cumulative preferred stock in the Pennsylvania Co. to the amount of $133⅓ for each $100 share.

Tacoma, Wash.—The Northwestern Improvement Co. will open a new coal mine between Cle Elm and Roslyn at a cost of about $100,000. General Manager C. C. Anderson states that it will have a supply of about ten million tons. This new mine will take the place of the Ravensdale mine recently closed on account of the disaster and also the old Cle Elm mine that is nearly worked out. A seven hundred foot tunnel has already been driven and miners are now at work on the incline. It will be known as "No. 7."

Chicago, Ill.—The Illinois Central R.R. was accused of discriminating against the German-American Portland Cement Co., in the matter of rates charged for the shipment of coal from Southern Illinois to La Salle and Oglesby, Ill., at an inquiry held here recently by Examiner J. L. Bowlus, of the Public Utilities Commission. Attorneys for the railroad testified that only 18 per cent. of the coal shipped to LaSalle and Oglesby was handled by the Illinois Central, and maintained that the road was not responsible for the rate.

Whitesburg, Ky.—Following the acquisition of the interests of the Mineral Fuel Co., the Elkhorn Fuel Co. and the Elkhorn Mining Corporation by the Elkhorn Coal Corporation, which is now said to have a working agreement with the Consolidation Coal Co., it is said that plans are being made by the merging corporation and the Consolidation to open new mines at Jenkins, Dunham, Fleming and Haymond. Advance orders have been taken by both companies for the entire product this year with all increases that can be made.

La Follette, Tenn.—On Feb. 18,, by order of the United States District Court of the Northern Division of the Eastern District of Tennessee, the property of the La Follette Coal, Iron and Railway Co., operated by Neil Robinson, receiver, was sold at public auction on the Court House steps at Jacksboro, Tenn., to the La Follette Coal and Iron Co. The resident officers of the new company are: Neil Robinson, president and general manager; T. B. Foust, manager of iron department; G. M. Shoemaker, manager of coal department; A. D. Macfarlane, manager of coke department; W. H. McGee, assistant treasurer.

Juneau, Alaska—Commissioner General of the Land Office has just rendered a decision approving the application of repayment for the purchase price on 35 coal claims in the Munday-Stracey coal group in the Bering River coal fields. The amount of the purchase price to be repaid totals $50,000. The claims were originally known as the English group and were promoted by Charles F. Munday and Archie Shiels, who were tried in Seattle two years ago for alleged conspiracy to defraud the government by fraudulent locations, and were acquitted. The locators applied for a refund of money under a recent act of congress passed for the relief of Alaskan coal land locators.

Cincinnati, Ohio—The Otto Marmet Coal and Mining Co. and the Plymouth Coal Mining Co., of this city, have been added to the proposed merger of coal companies operating in the splint district of West Virginia, the Marmet Coal Co.'s properties are involved as the nucleus of the deal. It is stated that agreements covering 137,000 acres of coal land have been secured, while negotiations are virtually completed for 135,000 acres more, the whole involving about $20,000,000. Among the companies now signed up, besides the three mentioned, are the Blue Creek Land and Coal Co., the Kelly's Creek Coal Co., the Mecca Colliery Co., the Hughes Creek Coal Co., the Virginia Coal Co., and the Morris Fork Coal Co., all of which have considerable acreages in the district mentioned. The deal is to be completed, under its terms as now announced, by Apr. 1.

Market Department

General Review

Anthracite slowing down, especially on the domestic grades. Negotiations at the wage conferences, controlling factor in all markets. Bituminous spotty and no definite developments on contracts. Exports increasing. Middle Western market less active.

Anthracite—The market is less active than for some time, particularly as regards the prepared sizes which are in plentiful supply and even occasionally difficult to move at the full circular. The immediate future of this trade depends largely on the weather and the results of the labor conferences. Dealers and consuming interests with small storage facilities, are apparently preparing to carry full stocks on Apr. 1, but the large concerns appear to be taking the position that even if there is a suspension it will hardly be of sufficient duration to clean up the large stocks now on hand. Heavy weather has interrupted shipments to down East points and caused considerable anxiety there, although prices on independent coal are substantially easier. Supplies are apparently plentiful through the West, and there is little demand from that direction.

Bituminous—The prompt market is spotty and irregular. In districts embargoed against coal shipments, the market is firm; dispatch is uncertain, supplies scarce, and buying and consuming interests decidedly nervous over the outlook, with the result that substantial premiums are still occasionally noted. These same embargoes, however, have resulted in the extra tonnages being diverted to other sections, creating surpluses and causing a heavy decline from the recent high prices. With a growing belief that the new wage scale will be arranged without any serious controversy, the accumulation of surpluses has ceased almost entirely, tending to further accentuate the reaction. The slow movement and scarcity of cars in the mining regions are the chief constructive factors, tending to maintain the market. On new contracts the selling agencies are making a bold stand for substantial increases, on the grounds that prices during the past few years have been abnormally low. Consuming interests appear willing to admit this argument, but will oppose any radical departure from the old prices aggressively.

Exports—In the face of the constantly increasing freight rates, the export movement is showing another spurt. Reports from all the loading ports show substantial increases during the past week, and dumpings at the Hampton Roads piers for February will closely approach those for the previous month, despite the fewer number of days. The demand from South-American ports shows the largest increase, while inquiries for heavy tonnages are also being received from Spain. The accumulation of coal at the railroad piers is substantially below normal, and shippers are frequently hard pressed for tonnage to load vessels promptly.

Lake Markets—There is a maximum tonnage moving on new contracts, but the prompt market is rather quiet, in spite of the fact that car shortages are more pronounced. Embargoes to Eastern points have restricted shipments in that direction, and made a larger tonnage available for these markets. Spot prices are more nearly normal. The domestic grades have suffered the most as a result of the unseasonable weather, and also because consumers seem to have accumulated all the surpluses they need. The situation on new contracts continues indeterminate, because of the uncertainty concerning the results of the impending wage conferences.

Middle West—The high temperatures have caused a sharp reaction in the market, particularly on domestic grades, and a large number of cancelations have been received. The wage conferences are also a potent factor in the situation, but orders for storage coal have fallen off appreciably which would indicate that there is confidence that an agreement will be effected without any important suspension; however, negotiations have not progressed sufficiently to throw any definite light on the outlook. The movement out from the upper Lake ports continues at full capacity. Some difficulty is experienced in getting an adequate supply of cars, but not of sufficient proportions to seriously restrict the movement.

A Year Ago—Anthracite collieries curtailing production, and April circulars prevail. Competition is keen on new bituminous contracts. Prompt market continues slack with no indications of any improvement in sight.

Business Opinions

Boston News Bureau—The gerenal situation was probably never more difficult to understand. Apparently the volume of business throughout the country, while perhaps not increasing at the rate observed several months ago, is still large, and corporate profits heavy, as is shown by statistics constantly coming to hand. The most noticeable feature, however, is the conservatism which prevails everywhere. Money continues easy, notwithstanding the opinion that rates ought to command a higher figure. But this is accounted for by the fact that we received from abroad last year over $400,000,000 in gold. This, together with the operations of the Federal reserve bank, gives confidence to put money out. A remarkable feature is the small demand from commercial interests. One reason probably is that collections are good and stocks not accumulating.

Iron Age—Steel prices are rushing up at a furious pace and in the past week conditions have grown more excited. Manufacturers as well as buyers consider the present level dangerous, but some of them had the same view weeks ago. Now they generally protest that they are creatures of a situation the end of which none can predict. It has been a week of heavy buying in many quarters, notably in pig iron and old material. More than 200,000 tons of steel-making pig iron has been closed and the Steel Corporation alone has bought 100,000 tons of steel scrap in the Pittsburgh and Chicago districts.

Dun—In a business way, this year cannot be compared with any other. It is between seasons and a period when abatement of activity usually occurs, yet there are now few dull spots anywhere. Clearance and special sales are exceptionally well patronized, while all the staple lines in every section show further expansion, transactions in the aggregate running beyond precedent. Even with stock market operations at a low ebb, bank clearings this week are 61.4 per cent. larger than last year and 47.9 per cent. in excess of 1914, and other important statistical barometers reflect the same tendency. Commercial failures this week are 407, against 428 last week, 408 the preceding week and 518 the corresponding week last year.

Bradstreet—Trade as well as industry still moves at a brisk pace, prices continue to advance, deliveries of raw and finished materials are complained of as slow, railway traffic is congested, supplies of money are plethoric, collections are good, and buyers of some lines, fearing insufficient supplies or still higher prices, have put out orders for fall delivery. In brief, most producing units of the country are choked with orders, and instead of seeking business for far-off shipment, the tendency is to move more slowly in this respect.

Dry Goods Economist—Although many of the buyers who were in the New York market have returned home, the desire to get hold of merchandise in quantities continues to be apparent in all parts of the country. In some instances, this attitude is so acute as to be in marked contrast with the views of many other retailers. It is also at variance with the conservative feeling which prevails in financial and speculative circles, where the thought seems to be that, while none can foresee the duration of the war, its end, when it does come, will bring many and great changes in our trade conditions.

American Wool and Cotton Reporter—Big sales of territory wools characterized the market for the week under review. Foreign wool is so scarce and so high that dealers prefer territories, because they can be obtained at more reasonable prices. All kinds of wool are strong, however, with prospects of advancing. Activity in the West for wool on the sheep's back is another feature of the wool market. Dealers are paying prices which the wool growers are asking.

Marshall Field & Co.—Current wholesale distribution of dry goods has been in excess of the corresponding period of a year ago. Road sales for immediate shipment are in greater volume than a year ago, and continue heavy for later spring and fall delivery. Customers have been in the market in greater number, and their house purchases have been heavy. Collections are normal and prices are firm.

ATLANTIC SEABOARD

BOSTON

Consignees are anxious over the slow movement of Pocahontas and New River coastwise. Little interest in contract situation. Georges Creek and the Pennsylvania grades in short supply. Anthracite receipts behind schedule.

Bituminous—Because of weather conditions stocks in New England are depleting faster than was expected, and there is now more or less apprehension over the slow arrivals. At the same time there is only scattering inquiry for coal alongside and prices show no advance over previous quotations; f.o.b. Hampton Roads, $2.85 is still the prevailing basis. The supply of bottoms is just about equal to receipts of coal at the terminals and except in a few instances no concessions are necessary to move the coal standing. So far there is no interest here in $3 as a base price beginning Apr. 1, even the agencies admitting there is small chance of its carrying through as a contract figure. A good deal will depend on wage scale developments in Pennsylvania during the present month and also on the trend of marine freights.

All the shippers who will be seeking contract business are in a dilemma as to price, particularly the delivered basis. Any large advance over the propositions made last fall will influence buyers to postpone entering the market.

An extra demand on the various distributing points is due to the slow movement all-rail. A great lack of motive power is characteristic of most of the New England railroads, and some startling tales are told of the length of time empty cars have been allowed to lie idle because there were no locomotives to move them. In several cases mills have had to shut down through lack of coal.

Georges Creek is again in short supply at all the loading ports, Baltimore especially being far behind on its usual quota for this territory. All-rail embargoes are so general that practically no shipments of this grade are coming through. Norfolk and Newport News are still emergency ports for units of the Georges Creek fleet when slow loading is in prospect at Baltimore.

The Pennsylvania operators are struggling with most of the adverse conditions that mean small output. Besides various local controversies over wage scale, the embargoes against most of the New England roads are still in effect. The movement from the mines to tide-water is also very slow. Dispatch on most of the grades is very uncertain at New York and Philadelphia. On the other hand, several shippers have been embargoed because of the accumulation of loaded cars and the trade at present is in rather unsatisfactory shape.

Anthracite—This market now is hinging very much on the weather, so far as concerns pressing requirements. Last week high northeasterly winds and fog practically stopped the movement along the coast and with the low temperatures this week there is again a good deal of uneasiness on the part of retailers. Not much strike talk is in the newspapers and the public generally is not attempting to fill the cellars. At New York stove size is again hard to get, the steam sizes also being scarce.

Prices on independent coal are easier; in most cases they are down close to the company circular. This must mean a serious loss to the shippers, for marine freights from New York are far above 50@55c. Buckwheats are commanding higher prices in proportion than the domestic sizes.

Bituminous prices, f.o.b. loading ports at points designated, are about as follows, per gross ton:

	Philadelphia	New York	Baltimore	F.o.b. Mine
Clearfields	$2.70@3.50	$3.00@3.80	.....	$1.45@2.00
Cambrias and Somersets	3.00@3.75	3.35@4.00	.....	1.60@2.15
Georges Creek	3.75@3.85	4,00@4.15	.....	.....

Pocahontas and New River are quoted at $2.85 f.o.b. Norfolk and Newport News, Va. On cars at Boston and Providence, Pocahontas and New River are quoted at $5.25@5.50.

NEW YORK

Anthracite market active but retailers are not stocking up and buying expected to be slow during March. Steam coals firm. Bituminous buying slow but shipments are increasing. Export situation active.

Anthracite—The anthracite market continues active. While there has been no rush of orders, most shippers report good business for immediate delivery. Weather conditions will have considerable to do with business during March. Dealers are apparently placing much reliance in statements of the mine workers' representatives that there will be no suspension of mining, even though no agreement is reached by Apr. 1.

The situation was very easy the latter part of last week and all prepared coals were longer than in several weeks but the colder weather on Sunday and Monday stiffened up the market on all sizes. Some shippers refused lone orders for chestnut coal the first of the week. Most agencies were getting full circular for all sizes, but there were others who were long on egg coal and were selling it at 10c. off company circular.

The steam coal sizes are all scarce. Some grades of pea coal command 25c. premium. Buckwheat No. 1 brought from $3 f.o.b. for cheap grades to $3.15 to $3.25 for good coals. Rice ranged from $2.10 to $2.15 for cheap coals to $2.40 to $2.50 for the better grades. Cheap grades of barley were quoted around $1.80, while the good grades were out of the market.

Current quotations, gross tons, f.o.b. Tidewater, follow:

	Lower Ports		Upper Ports	
	Circular	Individual	Circular	Individual
Broken	$5.05		$5.10	
Egg	5.30	$5.30@5.30	5.35	$5.35@5.35
Stove	5.30	5.30@5.30	5.35	5.35@5.35
Chestnut	5.55	5.55@5.55	5.60	5.60@5.60
Pea	3.50	3.50@3.75	3.55	3.55@3.80
Buckwheat	2.75	3.00@3.25	2.80	3.05@3.30
Rice	2.25	2.40@2.50	2.30	2.45@2.55
Barley	1.75	1.80@2.00	1.80	1.85@2.05

Bituminous—Most shippers report slow buying in soft coal. Demand became a trifle stronger early in the week, but prices remained stationary, averaging from $3.25 to $3.50 at the piers, with an occasional cargo going at from 10 to 25c. lower. Alongside prices for loaded cargoes are around $4. Mine prices vary considerably, much depending on the route taken for shipments. Line shipments are generally at a lower price than those to Tidewater. Even with plenty of coal on hand there is no attempt to crowd buyers. Close watch is being kept on the pending wage conferences and few new contracts will be entered into until the result is announced.

Loaded boats are quickly picked up and prices obtained are somewhat higher than for the same coals at the loading piers. Exports have taken another spurt and inquiries are being received for supplies from Spain. Freight congestion and scarcity of bottoms have made it impossible to accept many orders. Demand from South American ports is also on the increase and good prices are being quoted.

Current quotations, gross tons, f.o.b., Tidewater follow:

	South Amboy	Port Reading	St. George	Mine Price
Georges Creek Big Vein	$4.25@4.50	$4.25@4.50	$4.25@4.50	$2.75@3.00
Georges Creek Tyson	3.50@3.75	3.50@3.75	3.50@3.75	1.95@2.20
Clearfield:				
Medium	3.25@3.50	3.25@3.50	.....	1.70@1.95
Ordinary	3.25@3.50	3.25@3.50	.....	1.70@1.95
Broad Top Mountain				1.70@1.95
Cambria County:				
South Forks	3.50@3.75	.....	.....	1.95@2.20
Nanty Glo	3.35@3.60	.....	.....	1.80@2.05
Barnesboro	3.25@3.50	.....	.....	1.70@1.95
Somerset County:				
Quemahoning	.....	3.45@3.60	3.45@3.60	1.90@2.05
Medium	3.25@3.50	3.25@3.50	3.25@3.50	1.70@1.95
Latrobe	3.00@3.25	.....	.....	1.45@1.70
Greensburg	3.25@3.40	.....	.....	1.70@1.85
Westmoreland	3.55@3.65	.....	.....	2.00@2.10
West Virginia Fairmont ¾		3.25@3.40	3.25@3.40	1.45@1.60
Fairmont mine-run		3.25@3.40	3.25@3.40	1.45@1.60
Steam		3.00@3.25	3.00@3.25	1.45@1.70
Western Maryland		3.00@3.25	3.00@3.25	1.45@1.70

PHILADELPHIA

Anthracite maintains even pace. All orders well filled except for pea. Flurry in buckwheat but other steam sizes steady. Bituminous prices continue to decline but shipments are not equal to demand.

Anthracite—Business has been moving steadily along, although some of the small shippers who handle only free-burning or inferior hard grades, are experiencing some difficulty in marketing their production of prepared sizes. There has been sufficient hard coal coming into the market to supply all the dealers at the circular. Even pea coal, the demand for which is most active, is bringing only the circular price of $2.55, although there have been a few instances where the individuals were reported having asked 10c. higher without any success. This is a distinct disappointment to a number of brokers who had visions of handsome profits on this grade; with the labor conditions still very uncertain it may be that their hopes will be realized later.

Dealers are uncertain as to how much stock they should carry into April. Many of them seem confident there will be a suspension of mining, but as this may only last a short time there would be small likelihood of a shortage in view of the immense stocks in storage. The probability of reduction in freight rates is also causing them to hesitate. The smaller dealers, who cannot store more than a month's supply will apparently try to finish March business with full yards, judging by the orders they are now giving, but the large buyers probably will not carry capacity stocks, with the exception of

pea and smaller sizes. There are so many possible changes this year to the business of mining and selling coal that no one in authority is willing to risk advice.

Broken coal remains unchanged and is closely sold. Quite a few concerns who have been in the habit of contracting on this size about this time find that there is none available; even the manufacturers who have contracted at $3.35 appear willing to pay the circular price of $3.60 on all tonnage they can secure in excess of their contracts. Egg is in good demand at $3.85, while stove is still very active at $4.10. All chestnut is readily absorbed at $4.25. Orders are on hand for every available car of pea coal and the demand for this size is such as to exceed the production by many tons and will so continue as long as the size is made. In the steam coals buckwheat is the only size which showed increased activity, although rice still continues to go forward in large volume and at good prices, while barley is moving freely but with no particular activity.

Prices per gross ton, f.o.b. cars at mines for line shipment and f.o.b. Port Richmond for tide shipment, are as follows:

	Line	Tide		Line	Tide
Broken	$3.60	$4.85	Pea	$2.55	$3.30
Egg	3.85	5.10	Buckwheat	1.55	2.30
Stove	4.10	5.10	Rice	.90	1.80
Chestnut	4.25	5.35	Barley	.55	1.30

Bituminous—Prices continue their downward movement, running off from 5c. to 25c. Three-dollar coal has completely vanished, and the bulk of sales are being made between $1.35 and $1.50. The car supply continues very inadequate and few operators are making more than half time at their mines. The labor situation is now taking on a more favorable aspect, and indications are that an agreement will be reached soon; as a result orders are falling off, as many of the plants that have been stocking are now actually drawing on their accumulations for current use. Yet despite these unfavorable factors the shippers claim to be able to place more coal than they are receiving.

On new contracts the consumers are showing considerably more interest, yet when shippers quote prices around $1.50 to $1.75 there is a decided hesitancy about closing; consumers claim they are entirely willing to pay an increased price, but not near the amount asked. The mining interests contend that the contract prices during the past two years were excessively low and they feel that the present quotations are only equitable under present conditions. However, while some little business is being closed, it is believed that the greater proportion will drag along until after Apr. 1 when conditions are likely to be adjusted one way or the other.

The prices per gross ton at mines are about as follows:

Georges Creek Big Vein	$2.50@2.75	Fairmont gas, ¾	$1.70@1.80
South Fork Miller Vein	2.00@2.10	Fairmont gas, mine-run	1.50@1.60
Clearfield (ordinary)	1.65@1.75	Fairmont gas, slack	1.35@1.45
Somerset (ordinary)	1.60@1.70	Fairmont lump, ordinary	1.50@1.60
West Va. Freeport	1.45@1.55	Fairmont mine-run	1.30@1.40
		Fairmont slack	1.55@1.45

BALTIMORE

The bituminous market soft and uncertain. Exports increase. Coastwise freight rates stiffen again. Good retail anthracite trade.

The bituminous market here is both soft and dull. The continuance of embargoes against points north has diverted too much coal to this immediate territory for the good of the price list. Offerings are at prices considerably off contract figures, showing the spotty nature of the trade as a whole. Coal is selling at the mines on about the following basis, which is from 20 to 50c. in some cases off recognized rates on contract:

	Mines	Balt.*	Fairmont	Mines	Balt.*
Geo. Crk. Big Vein	$2.00	$3.18	Ordinary mine run	$0.90@ .95	$2.43
Geo. Crk. Tyson	1.85	3.03	Ordinary ¾	.90@1.00	2.48
Clearfield	1.50	2.68	Ordinary slack	1.05	2.53
South Fork	1.50	2.68	Low sulphur mine-run	Out of market	
Latrobe	1.20	2.38	Low sulphur ¾	Out of market	
Somerset (best)	1.50	2.68	Low sulphur slack	Out of market	
Somerset (good)	1.40	2.58			
Quemahoning	1.60	2.78			
Freeport	1.15	2.33			
Miller Vein	1.50	2.68			

* F. o. b., outside Capes.

Export business here is on the increase again, despite continued high ocean freight rates. The past week saw a total shipment of 22,430 tons and 2,588 tons of bunkers.

HAMPTON ROADS

Export and coastwise movements continue good with prices practically unchanged. Supplies at the piers short.

Dumpings over the piers show up well as export cargoes have been somewhat heavy and the coastwise movement has held up good. Coastwise shipments for the New England market have been largest to Boston, Providence and Portland. There has been a fair amount shipped to Baltimore by barges and there has also been a small movement South. The number of bunker boats calling at Hampton Roads has not been large but they have taken a good supply of coal. Prices remain unchanged, although the prospects are that there will be some change shortly in the price of bunker coal supplied to steamers which are not under contract.

From the present outlook the dumpings over the three piers will be close to the January figures, although up to Feb. 25 both the Chesapeake & Ohio and the Virginian were somewhat behind their January record. The accumulation of coal in the railroad yards is still below normal with quite a number of the shippers short and having difficulty in getting coal forward in sufficient quantities to handle vessels promptly on arrival. The railroads are doing everything possible to hurry coal forward.

Railroad Tonnages—Dumpings over the local piers for the past five weeks compare as follows:

Railroad	Week Ending Jan. 29	Feb. 5	Feb. 12	Feb. 19	Feb. 26
Norfolk & Western	147,596	128,288	158,265	121,156	156,521
Chesapeake & Ohio	117,715	106,543	106 525	71,513	87,450
Virginian	100,435	75,840	63,056	92,243	78,463
Totals	365,746	310,671	327,846	284,912	322,434

Ocean Charters and Freights

COASTWISE FREIGHTS

Rates from Hampton Roads to Boston are not quotably changed from a week ago. A shipper or consignee forced to charter would probably have to pay close to the rates named then, the movement meanwhile having been slow. At the same time a barge owner looking for an order would find it difficult to get $1.50 to Providence or $1.75 to Boston. As low as $1.50 has already been accepted and rates are expected to recede still further when the weather moderates. There is some inquiry for 12-months' charters, but the trade and the transportation people are far apart on their respective ideas of suitable rates. Seventy cents is quoted for boats from New York to ports on Long Island Sound. Slow loading at the piers is a factor in the lower range of freights.

OCEAN FREIGHTS

Since our last report the freight market for export coal has reached new high levels, especially to South American ports, to which destinations the market is advancing very rapidly from day to day, and steamers are very difficult to obtain. We would quote freight rates on coal by steamer as follows:

To	Rate	To	Rate
Havana	$3.75@4.00	Bermuda	$4.50@5.00
Cardenas or Sagua	4.75	Vera Cruz	6.50@7.00
Cienfuegos	4.50@4.75	Tampico	6.50@7.00
Port au Spain, Trinidad	7.50@8.00	Rio	16.00[4]
St. Lucia	7.50@8.00	Santos*	16.00**
St. Thomas	6.50@7.00	Montevideo	21.60[1]
Barbados	7.50@7.75	BuenosAires orLa Plata†	21.60
Kingston	4.50@5.00	Rosario	22.80[2]
Curacao	6.50@7.00p.c [3]	West Coast of Italy	27.60
Santiago	4.50@5.50	Barcelona**	25.20**
Guantanamo	4.50@5.50	Valparaiso or Callao	18.00
Demerara	8.00@9.00	Marseilles	26.40

* Consignees paying dockage dues. ** Spanish dues for account. † Quotations on Plate coal by British steamers; neutral steamers are more difficult to obtain and the rates are always higher. †† For very quick discharge.

[1] 500 tons discharge @ 30c. [2] 500 discharge. [3] And p.c. [4] Net, 1,000 tons discharge

W. W. Battie & Co.'s Coal Trade Freight Report.

VESSEL CLEARANCES

The following steamers have cleared from various ports during the week ended Feb. 26:

NORFOLK

Vessel	Destination	Tons
Perry Setzer[1]	Pernambuco	1,690
Apollo[1]	Rio de Janeiro	1,782
Dean E. Brown[6]	Puerto Plata	998
Tallac[1]	Kingston	1,589
Tabor[3]	Curacao	5,500
Giuseppi G.	Bagnoli	4,212
Jacksonville[3]	St. Georges	977
Hubert[2]	Para and Manaos	1,681
Juno[10]	Genoa	5,167
Nordboen[6]	Havana	4,000
Nordstjernen[1]	Barbadoes	3,410
Tirreno[9]	Naples	6,000
Jata Mendi[9]	Genoa	5,900
Eureka[2]	Valparaiso	2,881
Ocland[5]	Havana	5,500

NEWPORT NEWS

Vessel	Destination	Tons
Johan Ludwig Mowinkle[7]	Havana	4,300
Claveresk[10]	Felton	3,341
Oilfield Grange[7]	Bridgetown	4,650
Sir Ernest Cassell[4]	Gothenburg	8,500

BALTIMORE

Vessel		Cargo	Bunker
Eretza Mendi	Italy	5,956	699
Mar Cantribco	Spain	3,019	589
Moldegaard	Cuba	4,053	300
Balmoral	Italy	3,853	....
Letizia	Italy	2,140	....
Alcana	Italy	2,355	1,000
Chas. Whitemore	Porto Rico	1,054	....

[1] Smoeless Fuel Co. [2] Chesapeake & Ohio Coal & Coke Co. [3] Castner Curran & Bullitt, Inc. [4] Hutchinson Coal Co. [5] B. Whiteley. [6] C. G. Blake Co. [7] Berwind-White. Pocahontas Fuel Co. [9] Maryland Coal & Coke Co. [10] C. H. Sprague.

OHIO VALLEY

PITTSBURCH

Prompt market rather dull. Heavy contract shipments. Continued car shortages. Prices unchanged.

There is a very heavy movement of coal on regular contracts, all consumers taking substantially their maximum tonnages, but there is very little activity in the prompt market. Car shortages have been more pronounced in the past fortnight than on an average during the preceding part of the winter, but consumers do not seem to be so short as to be forced into the prompt market except in rare instances.

There is hardly any interest manifested in contracts for the year beginning Apr. 1 and some operators are disposed to question whether the greater strength of the coal market in the past two months has been an unmixed blessing, as it seems to dispose buyers to hold off negotiating contracts until conditions are more settled. So much has been heard, too, of the miners being likely to receive a material advance in wages that buyers are somewhat shy about accepting the usual form of contract, made with a proviso carrying over to the buyer any wage advance that may be granted.

Domestic demand has been somewhat better the past week but on the whole is not exceptionally heavy. We quote prompt coal unchanged as follows: Slack, $1.15@1.20; mine-run, $1.25@1.30; ¾-in., $1.35@1.40; 1¼-in., $1.50@1.60, per net ton at mine, Pittsburgh district.

BUFFALO

Demand light and prices only maintained by the car shortage. Anthracite quiet.

Bituminous—The demand has been light since the Eastern embargoes were raised, but now they are being put on again, as practically all the roads are badly congested and it is impossible to cover New England points with any dispatch. But for the large amount of coal in consumers' hands in that territory the situation would be distressing there.

The restricted demand here has about shut out the Ohio No. 8 coals, which must be offered at low prices now to find a market at all. Shippers are now making prices lower than for some time and the old lead of Pittsburgh and Allegheny Valley coals is about to be resumed; the prices of these latter are now down about to normal and when the market rights itself they will sell much as before.

Following are circular prices for Buffalo:

	Pittsburgh	Allegheny Valley	Penn Smokeless
Lump	$2.90	$2.75	$2.80
Three-quarter	2.75	2.60	.....
Mine run	2.65	2.50	2.60
Slack	2.25	2.20	2.60

Prices are per net ton, f.o.b., except that east of Rochester and Kingston, Ont., they are per gross ton.

Anthracite—The trade is disappointing to shippers, who think they are entitled to an active business now, since the sales for the season to date have not been up to normal. The weather has been especially favorable to sales all through February and there is promise of a continuation into March, but consumers are not sure to buy then, as a change is looked for at any time.

The larger companies are stocking coal and as soon as a shipping dock is to be had, more will be loaded into Lake vessels for winter storage. The independent anthracite mines are offering coal under circular now, for the first time this winter.

Following is the winter circular price of anthracite here:

	Cars	Vessels	Wagons	Curb
Grate	$5.60	$5.85	$5.40	$6.65
Egg	5.85	6.10	5.65	6.90
Stove	5.85	6.10	5.65	6.90
Chestnut	6.10	6.35	5.90	7.15
Pea	4.30	4.55	4.10	5.35
Buckwheat	3.25	3.50	3.05	4.30

Deliveries are per gross ton on cars and vessels and per net ton on wagons and at curb. An additional charge of about 25c. is made where it cannot be spouted into bin.

DETROIT

Moderate activity continues in steam coal but domestic grades and anthracite quieter. Shippers and vesselmen fail to agree on freight charges to Lake Michigan ports.

Bituminous—Numerous orders for small sizes cause some activity in the steam coal trade. Interest has extended to the larger sizes, and there is a more definite separation in the price of three-quarter lump and nut, pea and slack. The latter sells at about $1, though some is obtainable at a lower price. Three-quarter lump is bringing about $1.25 a ton. Domestic coal is less active, the higher temperatures having caused a reaction. There is comparatively steady buying from retailers.

Anthracite—Notwithstanding the possibility that the anthracite mines will close Apr. 1, pending settlement of the wage scale, demand is very light and more coal seems available than buyers are willing to take. Prices continue unchanged.

Lake Trade—Interest among shippers and vessel owners centers on the fixing of a rate for the coming season on shipments to Lake Michigan docks. Peter Reiss of the C. Reiss Coal Co., Sheboygan has been trying to close contracts at 30c., the rate of last season. Vessel-owners hold out for 35c. No agreement has been reached and vessel owners assert they could make a larger profit on sending their boats to Lake Superior, light for iron ore.

COLUMBUS

Trade steady despite unfavorable weather for domestic selling. Steam business holding up well. Contracting now attracting attention.

The steam business is still the best feature of the coal trade. Manufacturing is expanding and railroads are also fairly large users of steam sizes. The movement to accumulate a surplus is now about over, as stocks are believed to be adequate.

In the domestic trade, the weather has been warm and demand has fallen off considerably, but the weakness of a week ago has not increased and some profess to see more strength in the current situation. Retailers' stocks are not large and they are only buying for current needs. Some weakness has appeared in Pocahontas. Smokeless appears to be fairly strong, and the same is true of West Virginia splints. Anthracite prices are unchanged from last week. Despite the warm weather, retail prices in Columbus are generally well maintained.

Production in Ohio fields is holding up fairly well despite the unfavorable conditions. The Hocking Valley is not as active as formerly, but eastern Ohio and Pomeroy Bend are producing a fair tonnage.

Some attention is now being given to steam contracts, as quite a few expire around Apr. 1. Sales managers generally are looking forward to a rather active contract season and figures are higher than a year ago.

Prices in Ohio fields f.o.b. mines per short tons are as follows:

	Hocking	Pomeroy	Eastern Ohio	Kanawha
Re-screened lump	$1.60	$1.65	.....	.....
Inch and a quarter	1.50	1.50	$1.40	$1.50
Three-quarter-inch	1.40	1.40	.....	1.40
Nut	1.25	1.30	.....	1.25
Mine-run	1.15	1.20	1.05	1.15
Nut, pea and slack	.95	1.00	.90	.90
Coarse slack	.85	.90	.80	.80

CINCINNATI

Screenings remain the strongest. Domestic sizes are slow. Occasional flurries help the retailers.

It is a typical weather market, with relatively small business following even severe weather. Retailers, with the end of the winter in sight, prefer to clean up their yards rather than put in additional coal, even at attractive prices, and as a result it is difficult to force them into the market. Orders on cold snaps come only in small quantities, and from dealers whose stocks are completely exhausted. This limited market for the prepared sizes, causes a strong demand for nut and slack with resulting high prices. Sales of steam coal are reported at $1.10 and $1.20 per short ton f.o.b. mines, for the better grades of Kanawha. Steam consumption is showing actual improvement, although the scarcity of screenings is still an important factor in the market.

COKE

CONNELLSVILLE

Market very quiet but decidedly strong. Prospects of continued car shortage. Sale of spot furnace coke at $3.75.

The coke market is stronger all around, in a general way, although there is not much concrete evidence of additional strength. Prices paid for spot furnace coke are quotably higher, but the total turnover in spot and prompt coke in a week is so small that such prices are not altogether a conclusive indication. The operators are certainly feeling in a stronger position, as the winter wears away without the market becoming softer, when the general advances that occurred some time ago were regarded as due chiefly to the conception of winter, with its usual uncertainties as to car sup-

ply. It is now believed that cars will be more or less scarce for quite a while, irrespective of weather conditions. What puzzles operators is the fact that there is so little buying of prompt and spot coke when it would be supposed that quite a number of consumers have not been obtaining their full quotas on contracts.

Cars were almost as scarce last week as the week before, when the shortage made quite a hole in shipments, and affected production to a somewhat lesser degree. On Saturday a lot of about 1,000 tons of spot coke sold at $3.75, that being the top of the quotable market for the week. This week has opened with a better car supply, but as this is usual for the week's beginning the views of operators as to prices are as strong as they were at the end of last week. Quotations on contract furnace coke are practically nominal. We quote: Spot furnace, $3.50@3.75; contract, to July 1, $2.35@2.50; to Dec. 31, $2.25@2.35; spot foundry, $3.75@4.25; contract foundry, $3.25@3.75, per net ton at ovens.

The "Courier" reports production in the Connellsville and lower Connellsville region in the week ended Feb. 19 at 418,287 tons, a decrease of 23,022 tons, and shipments at 394,190 tons, a decrease of 38,266 tons.

Buffalo—The demand has continued good, but the output has increased so that with a better car supply it will soon be hard to get former prices. Jobbers quote best 72-hr. Connellsville foundry at $5.80@6, with $5@5.15 for 48-hr. furnace. Stock coke remains as scarce as ever, the demand being met by off-grade foundry. Buffalo is preparing to enter into close competition with the Pennsylvania ovens soon, as two or three byproduct companies will build ovens here as soon as the season becomes open enough to permit construction work.

Chicago—Coke production still lags behind demand. Car supply is now becoming a disquieting feature. Domestic purchases have been heavy, and orders for foundry coke have increased perceptibly. Prices per net ton of 2,000 lb., f.o.b. cars Chicago, are as follows: Connellsville, $6.50; Wise county, $6.50; byproduct foundry, $6.25; byproduct domestic, $5 to 5.25; gas house, $4.75.

St. Louis—While consumption and movement continues good for particular lines of industry, the general market situation has toned down considerably owing in some extent to the absence of domestic demand due to mild weather. Following are the prices, per net ton, f.o.b. cars St. Louis: Byproduct (all sizes), $5.25; gashouse (lump and egg), $4.50; petroleum (lump), $6.75.

MIDDLE WESTERN

GENERAL REVIEW

Warmer temperatures causes an easing up in the domestic demand. Steam sizes strong with screenings slightly softer. Anthracite demand very light. Car supply and movement bettered.

The approach of spring as indicated by the warmer weather of the week has halted buying of all grades of coal. Demand for coarse steam coals for industrial use continues steady, although screenings have slowed down, averaging about 5c. below last week's prices. It is anticipated that the lessened demand for domestic sizes will soon cause another sharp advance in fine coal owing to decreased production. The depression caused by the change in the weather is quite noticeable, many cancelations having been received, particularly on domestic sizes.

At some mines accumulations of unbilled coal have begun. The smokeless domestic situation is practically unchanged, but little demand for lump and egg being felt. Some contracts have been executed at the 1916 price list. Attention is centered on the wage conference at New York, and some of the large steam users have apparently come to the conclusion that no suspension will occur, and have discontinued buying storage coal. Some Western shippers have endeavored to persuade certain large coal consumers to take additional stocks against the possibility of a suspension on Apr. 1, but have not made any material progress in this direction.

CHICAGO

Warmer weather restricts domestic shipments to Chicago. Increased production of slack causes reaction in prices for fine coal. Smokeless mine-run well held but prepared sizes slow.

Notwithstanding the warm weather, Franklin County operators have been running full time and seem to have an abundance of orders. Shipments have been so much behind on domestic sizes that the mines have not yet felt the slump in orders. Some storage coal is being piled on the ground at Franklin County mines. Williamson County operators have been running maximum time on railroad and contract orders so that they have not been much affected by the open market situation. Southern Illinois screenings have declined about 10c. per ton under last week's figures.

Less storage and domestic coal has been shipped from the Springfield district this week, while screenings shipments have been at the maximum with no change in prices.

Indiana production now has normal movement, railroads damaged by floods having been repaired and car supply being much improved. Prices of all grades are well held. Screenings are strong and not too plentiful. Mine-run has been absorbed in increased quantities for steam use. Railroad storage orders continue heavy, and industrial consumption is at the highest point in years. No. 4 domestic lump has eased off perceptibly, but prices remain unchanged.

Smokeless mine-run has held up remarkably well with fair demand and prices maintained. Prepared sizes have not been sold at the circular prices, and it is reported that some lump in hoppers has been sold as low as $1.50. The restricted car supply has counteracted the unfavorable effects of the warmer weather. More Pennsylvania smokeless coal has been reaching this market at circular prices. Splint has had a steady call at previous quotations.

Hocking prices are ruling firm despite the lull in demand for domestic sizes. The stocking of steam sizes seems to be almost completed.

Kentucky domestic trade has been depressed by the warmer weather; steam coals are still strong, while screenings are not sufficient to meet demands. Prices are showing a wider range. Some of the Kentucky shippers requiring a large percentage of box cars, report a rather acute shortage of these.

Anthracite orders are meager, retailers apparently not buying in anticipation of a shut-down on Apr. 1, being afraid of having large stocks on hand at a time when the demand is negligible. The few shipments moving consist mostly of chestnut, which are absorbed by Chicago retail yards.

Quotations in the Chicago market are as follows.

Per net ton f.o.b. mines:

	Williamson and Franklin Co.	Springfield	Sullivan	Clinton	Knox and Greene Cos.
Lump	$1.60@1.75	$1.60@1.75	$1.50@1.75	$1.60@1.75	$1.50@1.60
Steam lump	1.35	1.25@1.30	1.25@1.35	1.30@1.35	....
2½ and 3-in. lump	....	....	1.30@1.35	....	1.30@1.35
1¼-in. lump	....	....	1.25@1.35	1.30@1.35	1.25@1.35
Egg	1.60@1.75	1.50@1.65	1.25	1.25@1.35	1.15@1.25
Nut	1.60@1.75	1.50@1.60	1.10@1.15	1.10@1.25	1.05@1.15
No. 1 washed	1.60@1.75	....	1.50	....	....
No. 2 washed	1.50	....	1.40	....	....
No. 1 nut	1.60@1.75	....	....	....	....
No. 2 nut	1.50@1.60	....	....	....	....
Mine-run	1.15@1.25	1.05@1.10	.95@1.10	1.10@1.15	1.10@1.15
Screenings	.90@1.05	.85@.95	.80@.95	.90@.95	.90@1.00

	Harrisburg & Saline Co.	E. Kentucky	Pocah. & W.Va.Smok'l.	Penna. Smokeless	Hocking
Lump	$1.60@1.75	$1.70@2.40	1.50@2.00	$1.75@2.00	$1.75@1.85
1¼-in. lump	1.25@1.30	....	....	....	1.60
Egg	1.60@1.75	1.50@2.00	1.50@2.00	1.75@2.00	....
Nut	1.60@1.75	1.35@1.60	....	....	....
No. 1 nut	1.60@1.75	....	....	....	....
No. 2 nut	1.50	....	....	....	....
Mine-run	1.15@1.25	1.05@1.15	1.25@1.40	1.40	1.15@1.25
Screenings	.90@1.00	.90	....	....	.90@1.10

ST. LOUIS

Heavy slump in the market for lower grades. Southern Illinois mines working on back orders. No domestic demand and steam consumption less. Screenings quiet.

The high temperatures have cut off nearly all demand and resulted in an unusual dullness for a winter period. There is also a feeling prevalent that if a suspension of mining operations occurs at all it will be of short duration. These are the controlling factors in the market at this time.

Standard and intermediate grades of lump, egg, nut and mine-run are moving in light volume and essentially for current steam consumption only; with the absence of any storage movement and only a minimum heat required for buildings, the demand has dwindled to almost nothing. With light mining operations in the field, screenings fail to show any activity as might be expected. Prices continue the same as last week with no indication of any change.

Montgomery County, Mt. Olive and Staunton districts, while having a surplus for the market, are enjoying better conditions, receiving higher prices, and having a larger movement and better working time at the mines.

Williamson and Franklin County operators are maintaining a steady pace but are fast cleaning up the accumulation of orders as is plainly reflected by the drop in prices from that direction. Few orders are coming in from anywhere and no preference is shown for any particular one of the coarser sizes. Screenings while firm in price are not in brisk demand. There are no inquiries for storage coal and developments for the next few weeks rest entirely upon the result of the joint conference in New York.

Car supply is more plentiful and little complaint is now heard from that source.

Following is the range of prices, per net ton, f.o.b. cars at mines.

	Williamson and Franklin	Staunton and Mt. Olive	Montgomery Co.	Intermediate	Standard
8-in. lump..	.....	.....	.....	$1.20@1.50	$1.10@1.25
6-in. lump..	$1.50@1.75	$1.25@1.50	$1.25@1.50	1.20@1.50	1.10@1.25
3-in. lump..	1.50@1.75	1.25@1.40	.....	1.20@1.50	.....
2-in. lump..	1.40@1.50	1.15@1.25	.....	1.15@1.25	.95@1.10
1¼-in. lump.	1.40@1.50	.....	1.20@1.35	1.10@1.25	.90@1.10
6x3-in. egg..	1.50@1.75	.....	1.25@1.50	1.20@1.50	1.10@1.25
6x2-in. egg..	.....	.....	1.20@1.35	1.15@1.25	.90@1.10
6x1¼-in. egg	1.40@1.50	.....	1.20@1.35	1.10@1.25	.90@1.10
No. 1 nut..	1.30@1.50	.....	1.25@1.40	1.10@1.25	.90@1.10
No. 2 nut..	1.25@1.40	1.00@1.15	.....	.90@1.10	.90@1.05
Mine run...	1.10@1.15	1.10@1.15	1.10@1.15	1.05@1.15	.90@1.00
Screenings..	.90@1.00	.75@ .90	.75@ .90	.65@ .80	.65@ .80
Washed					
No. 1 nut..	1.60@1.75	1.50@1.60	.....	1.50@1.60	1.50@1.60
No. 2 nut..	1.50@1.60	1.25@1.40	.....	1.25@1.40	1.25@1.40
No. 3 nut..	1.50@1.60	1.20@1.30	.....	1.20@1.30	1.25@1.30
No. 4 pea..	1.50@1.60	1.15@1.25	.....	1.15@1.25	1.15@1.25
No. 5 slack.	.90@1.00	.75@ .85	.....	.75@ .85	.75@ .85

INDIANAPOLIS

Car shortage continues with little prospect for any relief. Prices generally unchanged. Interest concentrated on wage conferences.

Car shortage continues the chief factor in the Indiana coal situation; practically all the railroads in the state are affected and production is about 25% less than before. Some of the railroads are short and are unable to supply sufficient transportation facilities to the mines with which they have contracts. Producers, jobbers and consumers are watching the wage conferences closely and the belief that there will be a settlement is shown by a slowing up in orders though there is still some stocking. Indiana mine prices are unchanged with a slight exception in screenings, which are easy at 85c. for Nos. 5 and 6. There is practically no free coal on the market.

DULUTH

Shipments continue heavy and prices are very firm. Car situation improves. Anthracite active.

Shipments of all grades continue at a high level. The weather has been seasonably cold and the docks have been worked to their maximum capacity to meet the demands of the trade. Country dealers and retailers are taking a large volume of bituminous and the dock companies are receiving full circular on this business. Car supply is as yet inadequate on some of the roads although there is a big improvement as compared with last week. Quotations per short ton, f.o.b. cars at Duluth docks are as follows:

	Yough	Splint	Hock	Smokeless	Elkhorn
Lump.....	$3.40	$3.40	$3.40	$5.00	$3.75
Dock run.....	3.10	3.10	3.05	3.25	3.25
Egg, stove and nut	3.40	3.40	3.40	5.00	3.65
Screenings.....	2.50	2.50	2.25	2.75	2.55

The demand for anthracite from interior points is well maintained and a fairly large tonnage is moving. Stocks are holding up well, no reports as to shortages being noted. Quotations are as follows per short ton, f.o.b. cars Duluth docks: Nut, $7.10; stove, $6.85; egg, $6.85; pea, $5.55 and buckwheat, $4.

PRODUCTION AND TRANSPORTATION STATISTICS

NORFOLK & WESTERN

Distribution of shipments for November and January follows:

	November			January		
	Shipped	Tipple	Total	Shipped	Tipple	Total
Pocahontas.....	1,387,567	12,137	1,399,704	1,391,079	13,385	1,404,464
Tug River.....	339,154	3,474	342,628	343,516	3,623	347,139
Thacker.....	267,961	7,271	275,232	284,135	5,464	289,599
Kenova.....	92,587	10,833	103,420	89,459	9,059	98,518
Totals.....	2,087,269	33,715	2,120,984	2,108,189	31,531	2,139,720

Shipments of coke entirely from the Pocahontas field amounted to 74,293 in November and in January, 107,952.

PENNSYLVANIA RAILROAD

The following is a statement of shipments over the P. R.R. Co.'s lines east of Pittsburgh and Erie for December and January in short tons:

	December		January	
	1915	1914	1915	1914
Anthracite.....	1,079,076	980,275	1,136,878	886,233
Bituminous.....	4,298,382	3,269,635	4,314,806	3,498,936
Coke.....	1,195,899	618,694	1,191,732	684,133
Total.....	6,573,357	4,868,604	6,643,416	5,069,302

IMPORTS AND EXPORTS

The following is a comparative statement of coal imports and exports of the United States for December, 1914-15, and for the twelve months ending December, 1913-14-15, in long tons:

	December		Twelve Months		
Imports:	1914	1915	1913	1914	1915
Anthracite, total..	12	173	921	19,347	2,998
Bituminous, total	168,035	175,023	1,413,857[2]	1,375,316	1,521,237
United Kingdom	10,992	1,174	6,141	27,421	18,361
Canada.....	112,759	167,131	1,096,924	1,050,592	1,253,829
Japan.....	19,170	5,400	117,483	75,109	86,919
Australia.....	25,114	1,218	188,613	219,941	159,241
Other countries.	.....	100	4,696	2,253	2,887
Coke.....	5,915	4,047	93,507[2]	120,777	47,520
Exports					
Anthracite total..	184,467	295,694	4,154,386	3,830,244	3,542,971
Canada.....	182,349	282,394	4,083,333	3,767,774	3,440,009
Argentina.....	.....	57	.....	.....	2,526
Brazil.....	.....	.....	.....	6	2,415
Uruguay.....	.....	.....	84	.....	605
Other countries.	2,118	1,243	70,969	62,464	97,416
Bituminous total[1]	696,546	1,161,936	17,986,757	13,801,850	16,762,280
Italy.....	.....	184,400	.....	.....	2,931,581
Canada.....	428,777	629,289	13,496,190	9,170,901	8,354,375
Panama.....	15,800	34,337	489,761	267,598	515,341
Mexico.....	35,266	14,343	477,046	359,802	276,433
Cuba.....	62,733	131,448	1,275,538	1,074,825	1,165,871
West Indies....	28,596	62,164	608,762	552,600	529,423
Argentina.....	9,305	27,646	70,048	241,248	786,967
Brazil.....	17,090	38,831	279,933	278,026	617,304
Uruguay.....	.....	6,107	16,858	76,088	158,201
Other countries.	98,979	33,371	1,272,621	1,780,762	1,426,787
Total coal.....	881,014	1,457,630	22,141,143	17,632,094	20,305,254
Coke.....	48,389	73,036	881,603	592,487	799,444
Bunker coal.....	490,931	564,352	7,700,520	7,266,002	7,464,630

[1] Beginning Oct. 4, 1913. [2] For part year only.

EXPORTS

Exports of domestic coal and coke from the United States, and bunker coal laden on vessels engaged in the foreign trade, at the specified districts, during the month of December, 1915, were as follows:

Districts:	Anthracite	Bituminous	Coke
Maine and New Hampshire.....	204	.....	.....
Maryland.....	.....	69,935	23
Massachusetts.....	112	1	.....
New York.....	6,838	2,309	69
Philadelphia.....	12,343	87,478	4,553
South Carolina.....	.....	2,206	.....
Virginia.....	244	361,663	6,084
Florida.....	1	.....	.....
New Orleans.....	.....	802	7
Sabine.....	92	.....	.....
Arizona.....	2	3,042	5,080
Eagle Pass.....	.....	406	430
El Paso.....	.....	2,735	144
Laredo.....	.....	2,013	1,863
San Francisco.....	.....	58	12
Southern California.....	4	46	.....
Washington.....	5	641	3,169
Buffalo.....	196,876	279,604	38,428
Dakota.....	1,840	4,531	341
Duluth and Superior.....	158	5,375	175
Michigan.....	51	83,354	8,700
Ohio.....	3	196,934	1,198
Rochester.....	4,500	30,624	573
St. Lawrence.....	71,537	27,657	2,105
Vermont.....	884	522	82
Total.....	295,694	1,161,936	73,036

BUNKER COAL

Maryland.....	38,956	Philadelphia.....	30,519
New York.....	289,842	Virginia.....	107,195

VIRGINIAN RAILWAY

Total shipments of coal over this road for November of last year amounted to 355,439 tons as compared with 359,226 tons for the preceding month.

FOREIGN MARKETS

GREAT BRITAIN

Feb. 16.—The great pressure recently prevailing is more pronounced, and it is very difficult to secure supplies in early positions. Quotations are approximately as follows:

Best Welsh steam.....	Nominal	Best Monmouthshires....	$8.52@8.64
Best seconds.....	Nominal	Seconds.....	8.40
Seconds.....	$8.40@8.64	Best Cardiff smalls.....	4.68
Best dry coals.....	8.40@8.64	Cargo smalls.....	3.36

The prices for Cardiff coals are f.o.b. Cardiff, Penarth or Barry, while those for Monmouthshire descriptions are f.o.b. Newport, both net, exclusive of wharfage.

Freights—Outward chartering is idle because of the shortage of coal. Rates are approximately as follows:

Gibraltar.....	$9.60	Naples.....	$14.40	St. Vincent.....	$10.20
Marseilles.....	16.40	Alexandria.....	19.20	River Plate.....	10.80
Algiers.....	14.47	Port Said.....	19.20		
Genoa.....	14.40	Las Palmas.....	9 60		

Coal Contracts Pending

Important Announcement

This contract department of "Coal Age" has been originated and carried on at a very heavy expense; the services of more than 90 correspondents have been drawn upon to assemble this information. In carrying on this work, the editors have encountered opposition, not only from the consuming companies, but also from the producing and selling interests. Objections and criticisms have been received from numerous sources, and this lack of support causes the editors to feel that their efforts in this direction may have been misdirected. We are, therefore, discontinuing the department with this issue. Plans are under consideration by which arrangements may be concluded for furnishing our friends with this information in a private way, and those interested should communicate with us on the matter.—Editor.

New Business

Volume and page number in parenthesis at the end of an item indicate where the previous announcement, bids and awards on that contract may be found.

2317—Bridgeton, N. J.—The contract of the Ferracute Machine Co expires on Apr. 1, and the company negotiates for a new supply some time previous to that. Address Purchasing Agent, Ferracute Machine Co., Bridgeton, N. J.

2318—Bridgeton, N. J.—The Pembryn Brick Co. contracts for its annual fuel supply, involving about 1,200 tons, on Apr. 1. Deliveries are made by Pennsylvania R.R. Address Pur. Agt. Ed. Bacon, Pembryn Brick Co., Bridgeton, N. J.

2319—Bridgeton, N. J.—The Bridgeton Brick Co. contracts for its annual fuel supply on Apr. 1. Address Pur. Agt. Ridgely, The Bridgeton Brick Co., Bridgeton, N. J.

2320—Bridgeton, N. J.—The Bridgeton Water Supply Co. contracts for its annual fuel supply, involving about 400 tons, on Apr. 1. It is understood that they pay about $3.35 per ton. Address Pur. Agt. Fredericks, The Bridgeton Water Supply Co., Bridgeton, N. J.

2321—Chester, Penn.—The Arasapha Manufacturing Co. contracts for its annual fuel supply, involving about 1,800 tons, on Apr. 1. Address Pur. Agt. Blakely, The Arasapha Manufacturing Co., Chester, Penn.

2322—Vicksburg, Miss.—The Vicksburg Light and Traction Co. usually contract for its annual fuel requirements, involving 6,000 tons of Carbon Hill, washed pea and slack, and 3,000 tons of Nortonville and West Kentucky pea and slack, some time in April. Deliveries are made by railroad at the rate of about 175 tons per week, and the company has storage capacity for 750 tons. Address Mgr. O. H. Simonds, Vicksburg Light and Traction Co., Washington St., Vicksburg, Miss.

2323—Fredericton, N. B., Can.—A. H. Van Wart usually contracts for his annual fuel requirements, involving about 5,000 tons of anthracite egg, 3,000 tons of stove, and 1,000 tons of chestnut, some time in April. He has a storage capacity for 2,000 tons, and deliveries are made by water during the summer. Address A. H. Van Wart, Fredericton, N. B., Can.

2324—White Haven, Penn.—The White Haven School Board will receive bids until Mar. 6 for furnishing and delivering coal as may be required during the ensuing year. Specifications may be had on application. Address Sec. Frank Schaizle, White Haven School Board, White Haven, Penn.

2325—Chicago, Ill.—The Independent Brewing Association will soon contract for its annual fuel requirements, involving approximately three cars of 2-in. Illinois screenings per week. Address Pur. Agt. Boldenweck, Independent Brewing Assn., 821 Blackhawk St., Chicago, Ill.

2326—Burlington, N. C.—The Piedmont Railway and Electric Co. contract for its annual fuel requirements, involving approximately 8,000 tons of New River and Pocahontas coal, some time in April. Deliveries are made by railroad at the rate of 700 tons per month, and the company has a storage capacity of 2,000 tons. Address Purchasing Agent, the Piedmont Railway and Electric Co., Burlington, N. C.

2327—Cleveland, Ohio—The Cleveland Wire Spring Co. will contract about Apr. 1 for between 20 and 25 cars of Ohio or Pennsylvania nut coal, to be delievered between Oct. 1 of the current year, and Apr. 1 of next year. Address Pur. Agt. H. E. V. Harmer, Cleveland Wire Spring Co., Cleveland, Ohio.

2328—Boston, Mass.—The J. Carton Belting Co. contract for its annual fuel requirements, involving approximately 400 tons of bituminous coal, in April or May. Deliveries are made by wagon at the rate of about nine tons per week, and the company has storage capacity for ten tons. Address Pur. Agt. E. T. Wilmot, J. Carton Belting Co., 52 Everett St., Boston, Mass.

2329—Savanna, Ill.—The Peoples Gas and Electric Co. contract for its annual fuel requirements, involving approximately 3,500 tons of Illinois washed screenings, some time in April. Business is done on competitive basis, and the approximate cost is $2.60 per ton, delivered in bins. Address Purchasing Agent, The Peoples Gas and Electric Co., Savanna, Ill.

2330—Dalton, Ga.—The Crown Cotton Mills contract for its annual fuel requirements, involving approximately 14,000 tons of bituminous mine-run, and 1,500 tons of domestic block coal, some time in April. Deliveries are made by railroad, and the company has storage capacity for 5,000 tons. Address Purchasing Agent, The Crown Cotton Mills, Dalton, Ga.

2331—Warsaw, Ind.—The Winona Electric Co. usually contracts for its annual fuel requirements, involving about 10,000 tons of slack coal, some time during April. Deliveries are made by Pennsylvania R.R. at the rate of approximately 200 tons per week, and the company has storage capacity for 2,000 tons. Address Pur. Agt. C. F. Franklin, Winona Electric Co., Warsaw, Ind.

2332—Streator, Ill.—The Barr Clay Co. usually contracts for its annuel fuel requirements, involving about 220 tons of 1¼-in. lump and 30 tons of screenings per day, some time about Apr. 1. Deliveries are made by railroad. Address Purchasing Agent, the Barr Clay Co., Streator, Ill.

2333—Humboldt, Tenn.—The light and water plant at this place usually contracts for its annual fuel requirements, involving approximately 3,200 tons of pea and slack coal, some time during April. The business is done on competitive bids and the usual price is about 72½c. per ton. Address Chf. Engr. and Supt. W. A. Moore, Humboldt, Tenn.

2334—Philadelphia, Penn.—The Commonwealth Brewing Co. usually contracts for its annual fuel requirements, involving about 7,000 tons of smokeless bituminous coal, on Apr. 1. Deliveries are made by way of Pennsylvania R.R. Address Purchasing Agent, the Commonweath Brewing Co., 2733 Cambridge St., Philadelphia, Penn.

2335—Cleveland, Ohio—The Cleveland Salt Co. will contract for its annual fuel requirements, involving about four gondola cars of Pittsburgh No. 8 slack per week, on Apr. 1. Deliveries are made by Pennsylvania R.R. Address Pur. Agt. Miss Fogal, the Cleveland Salt Co., Cleveland, Ohio.

2336—Buffalo, N. Y.—The Jacob Dold Packing Co. usually contracts for its annual fuel requirements, involving approximately 35,000 tons of mine-run coal, on Apr. 1. Deliveries are made by railroad at the rate of 85 to 100 tons per day, and the company has storage capacity for between 600 and 800 tons. Address Purchasing Agent, Jacob Dold Packing Co., Buffalo, N. Y.

2337—Chicago, Ill.—The Producers Stone and Gravel Co. is in the market for its annual fuel requirements. The Indiana plant of the company requires about 600 tons of 6-in. lump during eight months of the year, and the Lemont, Ill., plant from five to seven cars per month of 6-in. lump coal. Southern Illinois and Pike County Indiana coal are used. Address Pur. Agt. Rae, Producers Stone and Gravel Co., 29 So. La Salle St., Chicago, Ill.

2338—Philadelphia, Penn.—Charles Lennig & Co., Inc., contracts for its annual fuel requirements, involving approximately 15,000 tons of bituminous and 1,200 tons of anthracite, some time during April. Deliveries are made at the rate of

1,200 or 1,500 tons per month, the anthracite shipments coming in by rail and the bituminous by water. The company has storage capacity for 2,000 tons. Address Purchasing Agent, Charles Lennig & Co., Inc., 112 South Front St., Philadelphia, Penn.

2339—East St. John, N. B., Canada—Norton, Griffiths & Cohn contract for their annual fuel requirements, involving approximately 15,000 tons of mine-run and 100 tons of blacksmith coal, some time during April. Deliveries are made by water at the rate of approximately 1,400 tons per month, and the company has storage capacity for 3,000 tons. Address Pur. Agt. S. M. Telfer, Norton, Griffiths & Cohn, East St. John, N. B., Canada.

2340—Chicago, Ill.—The Elaborated Ready Roofing Co. will contract for its annual fuel requirements, involving about 24 cars of 6-in. Illinois lump coal, some time early in the spring. Address Purchasing Agent, the Elaborated Roofing Co., 6 N. Clark St., Chicago, Ill.

2341—Proctorsville, Vt.—H. T. Murdock & Co. contract for its annual fuel requirements, involving between 1,500 and 2,000 tons of bituminous coal, some time in April. Deliveries are made by railroad at the rate of approximately one car per week and the company has a storage capacity for 500 tons or more. Address Purchasing Agent, H. P. Murdock & Co., Proctorsville, Vt.

2342—Portland, Ind.—The Haynes Milling Co. contracts for its annual fuel requirements some time in April. They require a great variety of coal about as follows: Anthracite, 600 tons; Kentucky lump, 1,200 tons; Virginia lump and egg, 900 tons; Pocahontas lump, 200 tons; mine-run, 100 tons; Hocking Valley, 300 tons. Deliveries are made by railroad at the rate of about 40 tons per week. The company has a storage capacity for approximately 1,200 tons. Address Purchasing Agent, the Haynes Milling Co., Portland, Ind.

2343—Unionville, Mass.—The Franklin Mills Corporation contracts for its annual fuel requirements, involving approximately 500 tons of bituminous, some time in April. Deliveries are made by railroad at the rate of 35 tons per month and the company has storage capacity for 50 tons. Address Treas. Harold C. Cochran, Franklin Mills Corp., Unionville, Mass.

2344—Chicago, Ill.—The Chicago & South Haven Steamship Co. will contract for its annual fuel requirements, involving between 4,000 and 5,000 tons of West Virginia three-quarter-inch lump on Apr. 1. Address Pur. Agt. C. L. Beigh, Chicago & South Haven Steamship Co., 100 So. Water St., Chicago, Ill.

2345—Trenton, N. J.—The Elite Pottery Co. will contract for its annual fuel requirements, involving approximately 1,500 tons of George's Creek coal, on Apr. 1. Deliveries are made by Pennsylvania R.R. Address Pur. Agt. Benson, the Elite Pottery Co., Trenton, N. J.

2346—Pontiac, Mich.—Bids will be received by the Pontiac State Hospital until 1:30 p.m., Mar. 9, for furnishing the institution with approximately 7,500 tons of bituminous nut, pea, slack and mine-run coal, and 400 tons of anthracite grate and stove coal. The bituminous coal must be suitable for use in the Murphy Stokers. The contract is to become effective May 1. Address Steward E. H. Halsey, Pontiac State Hospital, Pontiac, Mich. (No. 170, Vol. 7, p. 399, p. 528.)

2347—Philadelphia, Penn.—The Pennsylvania Salt Manufacturing Co. usually contracts for its annual fuel requirements, involving 5,000 tons of gas slack and 7,000 tons of bituminous, about Apr. 1. Deliveries are made by both water and rail at their plant at Greenwich Point. Address Pur. Agt. Rhoads, Widener Bldg., Philadelphia, Penn.

2348—Kinston, N. C.—J. B. White, at this place, will negotiate for his annual fuel contracts in either April or May. About 650 tons of Pennsylvania anthracite, 1,250 tons of splint and 100 tons of Pocahontas egg coal are required. He has a storage capacity for about 1,000 tons. Deliveries are made by wagon. Address H. B. White, 200 E. Caswell St., Kinston, N. C.

2349—Ft. Wayne, Ind.—The Western Gas Construction Co. usually contracts for its annual fuel requirements some time in April. The company requires approximately 1,500 tons of mine-run coal and uses either West Virginia or Ohio, according to which can be obtained at the most advantageous figures. Deliveries are made by Pennsylvania R.R. at the rate of about one car per week, and the company has storage capacity for from six to eight cars. Address Pur. Agt. S. T. Stringer, the Western Gas Construction Co., Ft. Wayne, Ind.

2350—Charlottesville, Va.—The Charlottesville Woolen Mills usually contract for its annual fuel requirements, involving approximately 1,000 tons of New River mine-run coal, some time in April. Deliveries are made by the Chesapeake & Ohio Ry. at the rate of one or two cars per month. Address Pur. Agt., Charlottesville Woolen Mills, Charlottesville, Va.

2351—Allentown, Penn.—The City Government received bids until 3 p.m., Feb. 28, for furnishing approximately 240 gross tons of mine-run gas coal for use at the City Garbage Crematory. Address Mayor Reichenbach, Allentown, Penn. (No. 582, Vol. 7, p. 749.)

2352—Cadillac, Mich.—The Mitchell Brothers Co. will consider a new contract covering its annual fuel requirements, amounting to approximately 5,000 tons of three-quarter lump coal, some time in March. Deliveries are made to Jennings, Mich., at the rate of two cars per week. Address Pur. Agt. L. R. Bishop, the Mitchell Brothers Co., Cadillac, Mich.

2353—Jacksonville, Fla.—Sealed proposals will be received at the U. S. Engineer Office until Mar. 7, for furnishing approximately 2,000 tons of coal. Address U. S. Engineer Office, Jacksonville, Fla. (No. 892, Vol. 7, p. 1086; Vol. 8, pp. 76, 368.)

2354—Quincy, Ill.—The Quincy Railway Co. will contract for its annual fuel requirements, involving about three cars of screenings per week, some time in April. Address Purchasing Agent, Quincy Railway Co., 1889 Main St., Quincy, Ill.

2355—Lansdowne, Penn.—William J. Riehl, florist, is receiving the bids for furnishing his annual fuel requirements, involving approximately 800 tons of Clearfield coal. Deliveries are to begin Apr. 1, and will be by way of Pennsylvania R.R. Address William J. Riehl, Lansdowne, Penn.

2356—Minneapolis, Minn.—The Northwestern Knitting Co. will contract for its annual fuel requirements, involving approximately 4,500 tons of Youghiogheny screenings, some time in April. The company has a storage capacity for 200 tons and deliveries are made by wagon at the rate of twelve tons per day. Address Pur. Agt. C. I. Wilson, Northwestern Knitting Co., Minneapolis, Minn.

2357—Buffalo, N. Y.—J. N. Adam & Co. contracts for its annual fuel requirements, involving approximately 2,000 tons of bituminous slack coal, about Apr. 1. Deliveries are made by wagon as required and the company has a storage capacity for 60 tons. Address Pur. Agt. James A. Macpherson, Jr., J. N. Adam & Co., Buffalo, N. Y.

2358—Philadelphia, Penn.—Brehm & Stehl contract for their annual fuel requirements, involving approximately 3,000 tons of gas slack coal, some time during April. Deliveries are made by Pennsylvania R.R. at the rate of about one car per week and the company has a storage capacity for 600 tons. Address Purchasing Agent, Brehm & Stehl, Trenton and Allegheny St., Philadelphia, Penn.

2359—Chicago, Ill.—The Indiana Steel Co. will soon be in the market for its annual fuel supply, involving approximately 800,000 tons of Illinois, Indiana, Kentucky and West Virginia coal. Address Pur. Agt. C. F. Collins, Indiana Steel Co., 208 So. La Salle St., Chicago, Ill.

2360—Chester, Penn.—The Philadelphia Quartz Co. usually contracts for its annual fuel supply, involving approximately 3,000 tons of high-grade smokeless coal, about Apr. 1. Deliveries are made by barge from Port Richmond or Greenwich piers. Address Purchasing Agent, Philadelphia Quartz Co., 121 So. Third St., Philadelphia, Penn. (No. 1635, Vol. 8, p. 870.)

2361—Holland, Mich.—The Ottawa Furniture Co. is in the market for its annual fuel requirements, covering approximately 1,000 tons of three-quarter steam lump coal. Address Secy. W. H. Wing, the Ottawa Furniture Co., Holland, Mich.

2362—Macon, Ga.—The H. Stevens' Sons Co. contract for its annual fuel supply, involving approximately 6,000 tons of mine-run coal, some time in April. Deliveries are made by railroad at the rate of about 500 tons per month, and the company has practically unlimited storage capacity. Address Manager, H. Stevens' Sons Co., Macon, Ga.

2363—Gettysburg, Penn.—The Gettysburg Light Co. contracts for its annual fuel requirements, involving from 900 to 1,000 tons of bituminous mine-run, some time in April. Deliveries are made by railroad at the rate of one car per week and the company has a storage capacity for 150 tons. Address Purchasing Agent, Gettysburg Light Co., Gettysburg, Penn.

2364—Cambridge, Mass.—The Mason & Hamlin Co. contracts for its annual fuel requirements, involving approximately 2,000 tons of New River coal, about Apr. 1. Deliveries are made all-rail by Boston & Albany R.R. Address Purchasing Agent, Mason & Hamlin Co., Cambridge, Mass.

2365—Alto Pass, Ill.—The Curtis Milling Co. contracts for its annual fuel requirements, involving approximately 1,400 tons of coal, some time during April. About 700 tons of screening or slack coal are required for power purposes and 700 tons of lump and nut, which is resold for domestic use. The steam coal is delivered at the rate of 60 tons per month, and the domestic grade is bought mostly during the fall

and winter. The company has a storage capacity for 100 tons. Address Purchasing Agent, Curtis Milling Co., Alto Pass, Ill.

2366—Fort Mill, S. C.—The Fort Mill Manufacturing Co. contract for its annual fuel requirements, involving approximately 2,500 tons of mine-run coal, some time during April. Deliveries are made by railroad at the rate of about 50 tons per week and the company has a storage capacity of 300 tons. Address Pur. Agt. William L. Lewis, Fort Mill Manufacturing Co., Fort Mill, S. C.

2367—Bridgeton, N. J.—The Bridgeton Condensed Milk Co. is in the market for its annual fuel requirements, involving about 800 tons of bituminous coal. Deliveries are made by Pennsylvania Railroad and are to begin on Apr. 1. The company uses Johnstown coal. Address Purchasing Agent, Bridgeton Condensed Milk Co., Bridgeton, N. J.

2368—Kewanee, Ill.—The Galesburg & Kewanee Electric Railway Co. contracts for its annual fuel requirements, involving approximately 4,000 tons of Fulton County 1¼-in. screenings, some time during April. Deliveries are made by railroad at the rate of approximately 80 tons per week and the company has a storage capacity for 1,000 tons. Address Pur. Agt. R. H. Hayward, the Galesburg & Kewanee Electric Railway Co., Kewanee, Ill.

2369—Philadelphia, Penn.—The Phosphor Bronze Smelting Co. is in the market for its annual fuel requirements, involving about 1,000 tons of anthracite buckwheat and 3,000 tons of bituminous. The contract is to become effective about Apr. 1. Address Purchasing Agent, the Phosphor Bronze Smelting Co., 2200 Washington Ave., Philadelphia, Penn.

2370—Cleveland, Ohio—The Deckman-Duty Brick Co. contracts for its annual fuel requirements, involving approximately 14,000 tons of Ohio No. 8 three-quarter-inch and 20,000 tons of No. 6 mine-run, some time during April. Deliveries are made by railroad at the rate of 120 tons per day, and the company has a storage capacity for 1,500 tons. Address Purchasing Agent, the Deckman-Duty Brick Co., Cleveland, Ohio.

2371—Washington, D. C.—The West Brothers Brick Co. contracts for its annual fuel requirements, involving approximately 5,000 tons of bituminous coal, about Apr. 1. Deliveries are made by railroad and wagon. Address Purchasing Agent, West Brothers Brick Co., Washington, D. C.

2372—St. Louis, Mo.—The Excelsior Press Brick Co. contracts for its annual fuel requirements, involving about 2,000 tons of 2x6-in. egg and 500 tons of 6-in. lump, some time during April. Deliveries are made by railroad at the rate of approximately 50 tons per day, and the company has a storage capacity for 300 tons. Address Pur. Agt. D. S. Wenzlick, Excelsior Press Brick Co., 1010 Chestnut St., St. Louis, Mo.

2373—Chardon, Ohio—The Cleveland Macaroni Co. is now in the market for its annual fuel contracts, involving about two gondola cars per month. The company uses Ohio egg and nut coal and deliveries are made by Baltimore & Ohio R.R. Address Pur. Agt. G. N. Dobie, the Cleveland Macaroni Co., Cleveland, Ohio.

2374—Hanover, Penn.—The Hanover Cordage Co. contracts for its annual fuel requirements, involving from 1,200 to 1,500 tons of the best quality of bituminous coal, about Apr. 1. Deliveries are made by railroad at the rate of 100 to 150 tons per month and the company has a storage capacity for 300 tons. Address Pur. Agt. F. W. Weber, Hanover Cordage Co., Chestnut St., Hanover, Penn.

2375—Trenton, N. J.—The De Laval Steam Turbine Co. is receiving bids on its annual fuel requirements, involving approximately 2,500 tons of Clearfield bituminous coal, deliveries to begin Apr. 1. Address Pur. Agt. Roberts, the De Laval Steam Turbine Co., Trenton, N. J.

2376—Sherbrooke, Que., Can.—The Canadian Ingersoll-Rand Co., Ltd., contract for its annual fuel requirements, involving approximately 1,000 tons of bituminous mine-run, some time in April. Deliveries are made by railroad, and the company has storage capacity for 120 tons. Address Pur. Agt. P. H. Skelton, Canadian Ingersoll-Rand Co., Ltd., Sherbrooke, Que., Can.

2377—Roslyn, N. Y.—The New York & North Shore Traction Co. contracts for its annual fuel requirements, involving between 4,500 and 5,000 tons of semi-bituminous coal, about Apr. 1. The company stores about 3,000 tons during the summer months. Deliveries are made by water. Address Pur. Agt. J. G. Moran, the New York & North Shore Traction Co., Roslyn, N. Y.

2378—Chicago, Ill.—The Paramount Knitting Co. contracts for its annual fuel requirements, involving approximately 7,500 tons of No. 2 nut coal, some time in April. Deliveries are made by Illinois Central R.R. at the rate of three to four cars per week, and the company has storage capacity for from eight to ten cars. Address Pur. Agt. K. Kelly, 337 Madison St., Chicago, Ill.

2379—Greenwood, S. C.—The Greenwood Cotton Mills contracts for its annual fuel requirements, involving approximately 10,000 tons of bituminous coal, some time in April. Deliveries are made by railroad, and the company has storage capacity for 1,000 tons. Address Purchasing Agent, Greenwood Cotton Mills, Greenwood, S. C.

2380—Hanover, Penn.—The Hanover Light, Heat and Power Co. contract for its annual fuel requirement, involving approximately 4,500 tons of bituminous coal, some time in April. Address Pur. Agt. W. C. Hepperle, the Hanover Light, Heat and Power Co., Center Square, Hanover, Penn.

2381—Carrothers, Ohio—The Stockdale Tile and Brick Co. contract for its annual fuel requirements, involving 300 tons of bituminous three-quarter lump, some time during April. Deliveries are made by railroad, and the company have storage capacity for 100 tons. Address Pur. Agt. R. W. Stockdale, the Stockdale Tile and Brick Co., Carrothers, Ohio.

2382—Newport, N. H.—Dexter Richards & Sons Co. contract for their annual fuel requirements, involving approximately 4,500 tons of bituminous coal, some time during April. Deliveries are made by railroad, and the company has storage capacity for 600 tons. Address Pur. Agt. D. S. Rollins, Dexter Richards & Sons Co., Newport, N. H. (No. 197, Vol. 7, p. 400.)

2383—Columbia, Ill.—The City Government usually contracts for its annual fuel requirements for use at the electric light and gas plant some time during April. About 1,000 tons of Willis coal and 200 tons of Big Muddy are required. Deliveries are made by railroad at the rate of about 120 tons per month and the company has storage capacity for 80 tons. Address E. L. Rauch, Village of Columbia, Columbia, Ill.

2384—Cooperstown, N. Y.—The Otsego & Herkimer R.R. contracts for its annual fuel requirements, involving approximately 2,000 tons of bituminous, some time in April. Deliveries are made by railroad at the rate of 25 tons per day, and the company has storage capacity for 1,500 tons. Address Pur. Agt. C. S. Stanton, Otsego & Herkimer R.R., Cooperstown, N. Y.

2385—Clayton, N. C.—The Liberty Cotton Mills contracts for its annual requirements, involving approximately 1,500 tons of New River mine-run coal, about Apr. 1. Deliveries are made by railroad at the rate of three cars per month, and the company has storage capacity for 400 tons. Address Sec. and Treas. D. L. Barbour, Liberty Cotton Mills Co., Clayton, N. C.

2386—Philadelphia, Penn.—The Del Metal Refining Co. usually contracts for its annual fuel requirements, involving approximately 800 tons of Cambria County bituminous coal, about Apr. 1. Address Purchasing Agent, Del Metal Refining Co., 18th and Washington Ave., Philadelphia, Penn.

2387—Rochester, Ind.—The Rochester Electric Light, Heat and Power Co. contracts for its annual fuel requirements, involving approximately 7,000 tons of Indiana mine-run coal, some time during March. Address Supt. C. A. Dain, the Rochester Electric Light, Heat and Power Co., Rochester, Ind. (No. 77, Vol. 7, pp. 275, 398.)

2388—Trenton, N. J.—The Ajax Grieb Rubber Co., usually contracts for its annual fuel requirements, involving about 2,000 tons of South Fork bituminous coal, about Apr. 1. Deliveries are made by way of Pennsylvania R.R. Address Purchasing Agent, Ajax Grieb Rubber Co., Trenton, N. J.

2389—Chicago, Ill.—The International Roofing Manufacturing Co. is in the market for its annual fuel requirements, involving about one car of Franklin County, Illinois, mine-run coal per week. Address Purchasing Agent, International Roofing Manufacturing Co., 5301 S. Western Ave., Chicago, Ill.

2390—Cleveland, Ohio—The contract for the fuel requirements of the Municipal Electric Light Plant, involving approximately 75,000 tons of Youghiogheny slack, is usually negotiated some time during April. Deliveries are made by railroad at the rate of four cars per day, and the company has storage capacity for 3,600 tons. Address Commissioner and Chief Engineer F. W. Ballard, Municipal Electric Light Plant, Cleveland, Ohio. (No. 454, Vol. 7, pp. 627, 748, 875.)

2391—Louisville, Ky.—The Standard Sanitary Manufacturing Co. usually contracts in March for its annual fuel requirements, involving between 25,000 and 30,000 tons of pea and slack coal. Deliveries are made at the rate of ten to twelve cars per week. Address Pur. Agt. Jerome Fenner, the Standard Sanitary Manufacturing Co., Louisville, Ky.

2392—Middletown, N. Y.—The Wallkill Transit Co. contracts for its annual fuel requirements, involving approximately 3,000 tons of No. 1 buckwheat coal, some time in April. Deliveries are made by railroad at the rate of 250 tons per month, and the company has storage capacity for

1,000 tons. It is understood that the current contract is held by Dickson & Eddy. Address Purchasing Agent, the Wallkill Transit Co., Middletown, N. Y.

2393—Riverside, N. J.—The Wm. F. Tauble Hose Manufacturing Co. usually negotiates its annual fuel contract, involving approximately 3,000 tons of South Fork bituminous coal, about Apr. 1. Deliveries are made by Pennsylvania R.R. Address Pur. Agt. Wm. F. Tauble Hose Mfg. Co., Riverside, N. J.

2394—Chicago, Ill.—Natalby's, Inc., will negotiate its annual fuel contract, involving about 45 tons of Pocahontas mine-run per month, on Apr. 15. Address Pur. Agt. Natalby, Natlby's, Inc., 27 W. Randolph St., Chicago, Ill.

2395—Norton, Mass.—Talbot Wool Combing Co., Inc., usually contracts for its annual fuel requirements, involving approximately 2,400 tons of New River coal, about Apr. 1. Deliveries are made by railroad at the rate of approximately 200 tons per month, and the company has a storage capacity for 75 to 125 tons. Address Purchasing Agent, Talbot Wool Combing Co., Inc., Norton, Mass.

2396—Lansdowne, Penn.—Emil Leiker, florist at this place, usually contracts for his annual fuel requirements, involving approximately 1,000 tons of Clearfield bituminous coal, on Apr. 1. Address Emil Leiker, Lansdowne, Penn.

2397—Grand Rapids, Mich.—Sealed bids will be received at the U. S. Engineer Office until 11 a.m., Mar. 20, for furnishing and delivering coal to the U. S. Dredge "General Meade," during the year ending Mar. 31, 1917. Prospective bidders must furnish a bond for $1,200 guaranteeing the faithful performance of the contract. Address U. S. Engineer Office, Grand Rapids, Mich.

2398—Meriden, Conn.—The local school Board will receive bids until 11 a.m., Mar. 7, for furnishing approximately 1,300 tons of coal to be delivered during the year beginning Apr. 1. Address Supt. C. M. Williams, School Board, Meriden, Conn. (Vol. 7, pp. 448, 626, 796.)

2399—Urbana, Ohio—The McCoy Canning Co. is in the market for its annual fuel requirements, involving about 500 tons of Ohio three-quarter lump, to be delivered during June, July and August. Address Pur. Agt. C. C. Inskeep, The McCoy Canning Co., Urbana, Ohio.

2400—Alton, Ill.—The Alton Box Board Co. is receiving bids for furnishing from 110 to 120 tons of 1½-in. screenings per day during the year beginning Apr. 1. Quotations should be f.o.b. the mill, and should be on the basis of the current wage scale subject to any modification in same which may take place on Apr. 1. Address Mgr. H. C. Evans, Alton Box Board Co., Alton, Ill.

2401—Wilmington, Del.—The Board of Water Commissioners will receive bids until 10:30 a.m., Mar. 6, for furnishing the department with approximately 3,700 tons of bituminous coal during the year beginning Apr. 1. All bids should be on the basis of a short ton, and must include cost of delivery at the pumping station. Each bidder must furnish a certified check for $250, and a bond of $2,500 will be required of the successful bidder. Address Ch. Engr. Edgar M. Hoopes, Jr., Board of Water Commissioners, Wilmington, Del. (No. 304, Vol. 7, p. 488.)

2402—Sturgeon Bay, Wis.—The Public Utility Commission will receive bids until Mar. 13 for furnishing approximately 4,500 tons of three-quarter Youghiogheny coal f.o.b. Sturgeon Bay, Wis. Address Supt. Jas. E. Johnson, The Public Utility Commission, Sturgeon Bay, Wis. (No. 188, Vol. 7, pp. 399, 836.)

2403—Meriden, Conn.—Bids will be received until 11 a.m., Mar. 7, for furnishing the Connecticut School for Boys with approximately 1,300 tons of coal, deliveries to be made during the year beginning Apr. 1. Address Supt. Charles M. Williams, Connecticut School for Boys, Meriden, Conn. (No. 294, Vol. 7, p. 487.)

2404—Dayton, Ohio—The National Cash Register Co. is receiving bids for furnishing its annual fuel requirements, involving 35,000 tons of nut and slack coal, deliveries to be made in about equal weekly proportions during the year, beginning Apr. 1. Address Pur. Agt. J. Q. Finfrock, The National Cash Register Co., Dayton, Ohio.

2405—Holland, Mich.—The West Michigan Furniture Co. is considering contracting for its annual fuel requirements involving approximately 2,000 tons of West Virginia mine-run or three-quarter lump coal, deliveries to be at the rate of one car per week in winter, and two cars per month in summer. The current contract expires Apr. 1. Address Pur. Agt. Geo. P. Hummer, The West Michigan Furniture Co., Holland, Mich.

2406—Detroit, Mich.—J. W. Dykstra & Co., are in the market for approximately 2,000 tons per month of No. 2 Kanawha gas slack, and 1,000 tons per month of splint nut and slack, for delivery during the year beginning Apr. 1. Address J. W. Dykstra & Co., 820-21 Hammond Bldg., Detroit, Mich.

2407—Buffalo, N. Y.—The City Council will receive bids until Mar. 16 for furnishing approximately 50,000 tons of bituminous coal for use at the City Pumping Station during the year beginning Apr. 1. Address Supt. Arthur W. Kreinheder, Department of Public Works, Buffalo, N. Y. (No. 332, Vol. 7, pp. 528, 666).

Contracts Awarded

Note—Successful bidders are noted in **bold face** type.

1597—Steubenville, Ohio—This contract (Vol. 8, p. 736), which provides for furnishing the local public schools with coal during the coming winter, has been awarded to **Harry M. Bates,** at 8c. per bu. delivered to the schools. Between 175 and 200 tons a month will be required. Address Clk. W. S. McCauslen, Bd. of Edu., Steubenville, Ohio.

1765—New Orleans, La.—This contract (Vol. 8, p. 1044), which provides for furnishing the G. H. Leidenheimer Baking Co., with its annual fuel requirements, involving approximately 700 tons of coal, has been awarded to the **Tennessee Coal, Iron and Railroad Co.** Address G. H. Leidenheimer, G. H. Leidenheimer Baking Co., 1500 S. Franklin St., New Orleans, La.

1895—Philadelphia, Penn.—This contract (Vol. 9, p. 107), calling for buckwheat coal for Geo. D. Wetherill & Co., inc., has been awarded to the **Philadelphia & Reading Coal and Iron Co.** for the first quarter of the current year. Address Purchasing Agent, Geo. D. Wetherill & Co., Inc., Harold and Moyer St., Philadelphia, Penn.

1987—Harlan, Iowa—This contract (p. 193), which provides for furnishing the Municipal Electric Light plant with approximately 2,800 tons of coal, has been awarded to the **Colfax Consolidated Coal Co.,** at $1.25 per ton for steam coal. Address Supt. C. D. Lutton, Municipal Electric Light Plant, Harlan, Iowa. (No. 49, Vol. 7, pp. 149, 358.)

2073—Pottstown, Penn.—This contract (p. 279), which provides for furnishing the Pennsylvania Dye and Bleach Works, Inc., with approximately 1,200 tons of bituminous coal, has been awarded to **J. H. Weaver & Co.,** of Philadelphia, at $1.35 per ton. Address Pur. Agt. Charles Maderia, Pennsylvania Dye and Bleach Works, Inc., Pottstown, Penn.

2078—Spring City, Penn.—This contract (p. 279), which provides for furnishing the fuel requirements of the Pennsylvania Shafting Co., involving about 1,000 tons, will be awarded to the same company which has the present contract. Address Pur. Agt. Smith, Pennsylvania Shafting Co., Spring City, Penn.

2103—Carrington, N. D.—This contract (p. 317), which provides for furnishing the Foster County Board of Commissioners with coal, has been awarded to the **Callahan Transfer Co.,** at $2.95 per ton for large size screened lignite coal. Address Aud. Wm. Wiltschko, Foster County, Carrington, N. D.

2105—Keewatin, Minn.—This contract (p. 317), which provides for furnishing the town government with approximately 500 tons of high-grade Eastern coal, has been awarded to the **King Lumber Co.,** at prices ranging from $4.59 to $4.89 per ton. Address Clk. C. W. Extrum, Keewatin, Minn.

2113—Milford, Mass.—This contract (p. 318), which provides for furnishing the fuel requirements of the Milford & Uxbridge Street Ry., involving about 5,000 tons of Eureka bituminous coal, has been awarded to **Benedict Downs & Co.,** of New Haven. Address Pur. Agt. W. L. Adams, Milford & Uxbridge Street Ry., Milford, Mass.

2119—Philadelphia, Penn.—This contract (p. 318), which provides for furnishing the fuel requirements of the American Fork and Hoe Co., has been awarded to the **Maryland Coal Co.** Address Purchasing Agent, American Fork and Hoe Co., Ashland Ave., Philadelphia, Penn.

2157—Hamilton, Ohio—This contract (p. 361), which provides for furnishing the American Frog and Switch Co. with approximately 2,500 tons of coal, has been awarded to the **Pocahontas Winifrede Co.,** on Winifrede mine-run coal. Address Engr. W. H. Rabbé, American Frog and Switch Co., Hamilton, Ohio.

2159—Indianapolis, Ind.—This contract (p. 361), which provides for furnishing the Effingham, Ill., plant of the Van Camp Packing Co., has been awarded. Address Pur. Agt. John Niven, Van Camp Packing Co., Indianapolis, Ind.

2221—Youngstown, Ohio—A portion of this contract covering the requirements of the Bessemer Limestone Co., involving from 30,000 to 35,000 tons of slack coal, has been awarded to the **Penn Gas Coal Co.** The Bessemer Limestone Co. is also in the market for 10,000 tons more of slack, 5,000 tons of mine-run, and 5,000 tons of three-quarter. Address Pur. Agt., C. E. Blair, The Bessemer Limestone Co., 714 Stambaugh Bldg., Youngstown, Ohio.